

Training Today's Teachers

For

Tomorrow's Agriculture

Report of the

Second All-India Summer Institute In Agriculture

Held at

**The Department of Agricultural Education,
Regional College of Education, Ajmer**

May 1 through June 10, 1967

Sponsored by

The National Council of Educational Research and Training

in cooperation with

The United States Agency for International Development

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Edited by

R.P. Singh
L.E. Hedges

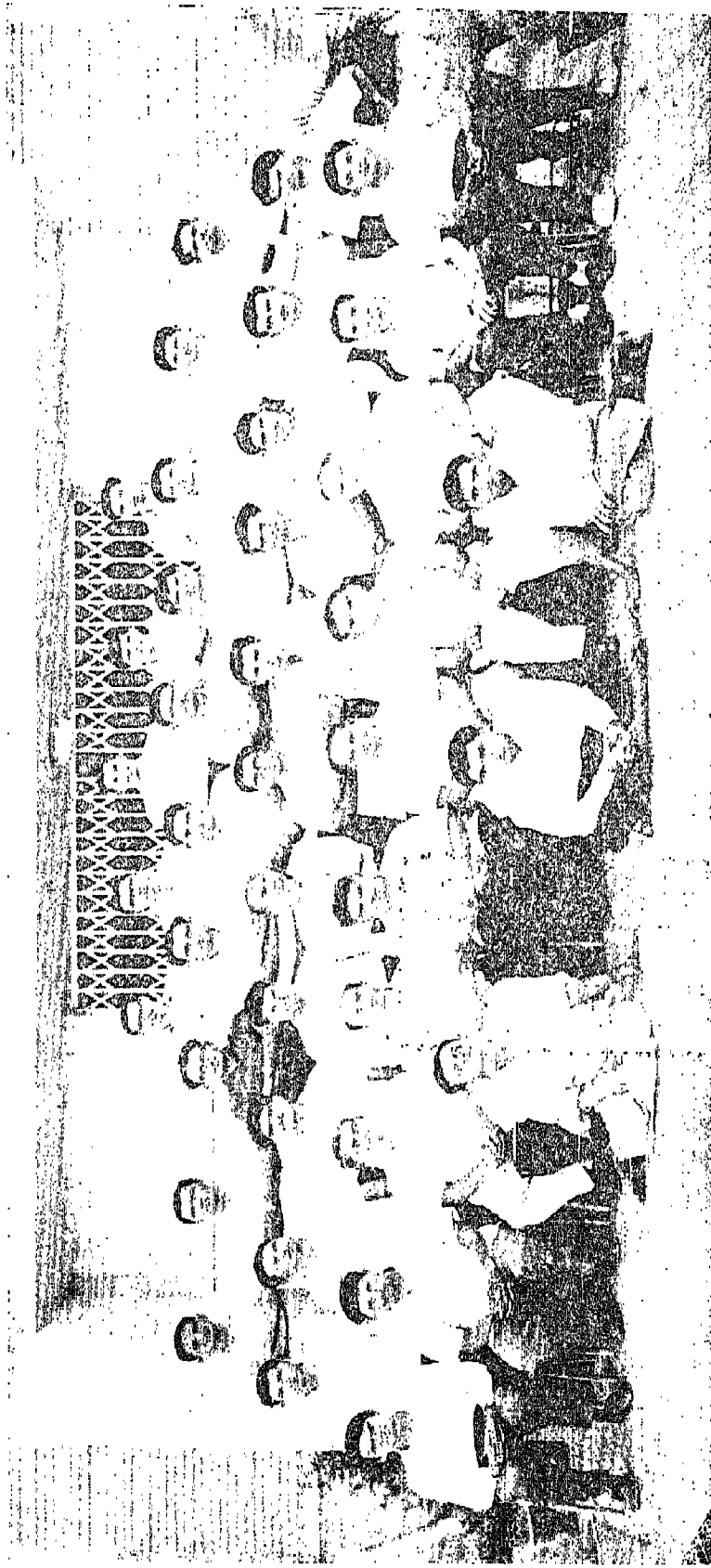


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1967

Second All-India Summer Institute in Agriculture (May 1 to June 10, 1967)
Regional College of Education, Ajmer (Raj.)



Left to right—

Sitting on Ground—T. C. Bose, P. C. Jain, L. Ch. Chaudhry.

Sitting on Chairs—V. C. Kimothi (Instructor), B. M. Tak (Instructor), N. Mukerji (Guest Speaker), M. G. Kelkar (Lecturer), S. S. Srivastava (Lecturer), R. P. Singh (Director), P. D. Sharma (Principal), L. E. Hedges (U. S. Consultant), S. P. Singh (Instructor), H. C. Joshi (Lab. Assistant).

Standing 1st Row—V. K. Garg, K. P. Sharma, M. Prasad, G. P. Verma, B. R. Singh, R. Prasad, Bhopal Singh Y. P. Singh, Bhisham Pal, K. T. Ramachandra, M. V. Yesurathnam.

Standing 2nd Row—J. P. Sharma, R. N. Adak, G. S. Bansal, S. P. Singh, M. S. Tomar, H. H. S. Yadav, M. P. Chaudhary, S. M. Jain, U. P. S. Sisodia, N. Jaysheela.

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EDITORS' COMMENTS

This report is the result of a six-week institute held at The Regional College of Education, Ajmer, May 1 through June 10, 1967, to train secondary school agriculture teachers in new methods of teaching agriculture as well as in improved production practices in farm enterprises. Twenty nine teachers participated in the institute which was directed by Shri R.P. Singh with the cooperation of other staff members and resource people.

The institute was aimed at the development of those teaching skills and production skills needed by today's teachers of agriculture. The teacher-participants were organized into six committees and the reports of these committees are structured so that the needed teaching techniques and improved production practices are presented in a form useful to the participants, other agriculture teachers and concerned educational authorities. The limits as to the size of the final report do not permit the inclusion of all materials developed and used during the institute.

It is planned that during the coming school year the institute participants will meet by states to exchange ideas and to discuss their experiences in applying new skills and programme ideas developed during the summer institute.

It is hoped that those persons reading this report will be led to a greater understanding of the problems that the teacher-participants will have in implementing these up-to-date programme ideas and teaching techniques. Much of the success that the teacher of agriculture will have in training better farmers depends upon the cooperation of school administrators and other higher educational authorities.

R.P. Singh
L.E. Hedges

Institute Personnel

- Director - Shri R.P. Singh, Head of the Department of Agricultural Education, Regional College of Education, AJMER.
- Consultants- Prof. Lowell E. Hedges, Consultant in Agricultural Education (O.S.U. Team - U.S. A.I.D.), Regional College of Education, AJMER.
- Prof. Daryl C. Sharp, Consultant in Agricultural Education, (O.S.U. Team - U.S. A.I.D.), Regional College of Education, MYSORE.
- Dr. E.E. Julson, Consultant in Agricultural Education, (O.S.U. Team - U.S. A.I.D.), Regional College of Education, BHOPAL.
- College Staff- Shri M.G. Kelkar, Lecturer in Agriculture, Regional in Agriculture College of Education, AJMER
- Shri S.S. Srivastava, Lecturer in Agriculture, Regional College of Education, AJMER
- Shri S.P. Singh, Teacher of Agriculture, Demonstration Multipurpose Higher Secondary School, Regional College of Education, AJMER.
- Shri V.C. Kimothi, Teacher of Agriculture, Demonstrator Multipurpose Higher Secondary School, Regional College of Education, AJMER.
- Shri B.M. Tak, Farm Workshop Instructor, Regional College of Education, AJMER.
- Shri H.C. Joshi, Store Keeper cum Lab. Assistant, Regional College of Education, AJMER.
- Resource - Dr. Wayne E. Schroeder, Chief of Party, OSU(Ed) Personnel Team - U.S.A. I.D., New Delhi.
- Dr. S.N. Saraf, Director, (Education) Planning Commission, New Delhi.
- Shri P.D. Sharma, Principal, Regional College of Education, AJMER.
- Shri B.M. Raina, District Agriculture Officer, AJMER.

Shri V.K. Gupta, Assistant Prof. of Agronomy, B.R. College,
P.O. Bichpuri, AGRA

Shri K.M. Mehta, Project Director, Rajasthan Canals, Dept.
of Agriculture, BIKANER (Rajasthan).

Dr. Ranbir Singh, State Soil Conservation Officer, JODHPUR.

Shri M.P. Dhatnagar, Joint Director of Agriculture (Research)
JAIPUR (Rajasthan).

Shri N. Mukerji, Sugarcane Agronomist, Rajasthan, BORKHERA
(Dist. Kota), Rajasthan.

Dr. M.S. Swaminathan, Director, Indian Agricultural
Research Institute, New Delhi-12.

Dr. S.S. Bains, Head of the Division of Agronomy, Indian
Agricultural Research Institute, New Delhi-12.

Dr. N.G. Dastane, Special Officer (Agriculture), Division
of Agronomy, Indian Agricultural Research Institute,
New Delhi-12.

Dr. V.S. Mani, Agronomist (Weed Control), Indian Agricul-
tural Research Institute, New Delhi-12.

Dr. R.B.L. Bhardwaj, Agronomist (Field Crops), Indian
Agricultural Research Institute, New Delhi-12.

Dr. Pran Nath, Agronomist (Vegetable Crops), Indian
Agricultural Research Institute, New Delhi-12.

Dr. R.N. Singh, Professor of Horticulture, Indian
Agricultural Research Institute, New Delhi-12.

Dr. S.S. Chatterji, Vegetable Breeder, Indian Agricultural
Research Institute, New Delhi-12.

Dr. Ghosh, Division of Horticulture, Indian Agricultural
Research Institute, New Delhi-12.

Dr. Paul C. Clayton, Specialist In Poultry, (OSU Team - U.S.A.I.D.), University of Udaipur, Udaipur (Raj.)

Shri R.K. Bhargava, Lecturer, Deptt. Animal Husbandry, University of Udaipur, Udaipur, (Rajasthan).

Shri R.K. Muralia, Manager, Pilot Milk Scheme, University of Udaipur, Udaipur (Rajasthan).

Shri J.S. Dhaliwal, Asst. Research Officer, Poultry Farm, University of Udaipur, Udaipur (Rajasthan).

Shri P. Mathews, Research Asst., Poultry Farm, University of Udaipur, Udaipur (Rajasthan).

Shri B.S. Jarry, Lecturer, Extension Wing, University of Udaipur, Udaipur (Rajasthan).

Dr. Prem Nath, Reader and Head, Department of Horticulture, S.K.N. College of Agriculture, University of Udaipur, Campus - Jobner (Rajasthan).

Dr. S.L. Sony, Department of Horticulture, College of Agriculture, Campus - Jobner (Rajasthan)

- Shri Rajendra Nath Adak, Dasagram Satish Chandra Sarbartha Sadhak Shiksha Sadan (Dist. Midnapur) W.B.

Shri Gyan Swaroop Bansal, Govt. Co-Educational H.S. School, MANDAWALI, Delhi.

Shri Tajendra Chandra Basu, Panchra Multipurpose School, PANCHRA (Dist. Birbhum) W.B.

Shri Laxmi Chand Chaudhry, Govt. M.P.H.S. School, SARADHANA (Ajmer) Rajasthan.

Shri Mahendra Pal Chaudhry, Govt. M.P.H.S. School, SARADHANA (Ajmer) Rajasthan.

Shri Bhu Dayal, K.L. Jain Inter College, Sasni (Aligarh) U.P.

Shri Virendra Kumar Garg, Govt. M.P.H.S. School, PISANGAN (Ajmer) Rajasthan.

Shri N. Jayasheela, Methodist Rural High School, Zaheerabad (A.P.)

Shri Padam Chand Jain, Govt. Multipurpose Hr. Sec. School, UJWA, Delhi.

- Shri Suraj Mal Jain, Govt. M.P.H.S. School, KEKRI (Raj).
- Shri Dharam Vir Singh Malik, Haryana Shakti Hr. Sec. School, KANJHAWALA (Delhi)
- Shri Jai Chand Malik, Govt. M.P.H.S. School, SHAHPURA (Bhilwara) Rajasthan.
- Shri Bhisham Pal, B.R. Inter College, BICHPURI, Agra, U.P.
- Shri Mathura Prasad, B.R.D.J. High School, GULARIA (Jalalabad) Shahjahanpur (U.P.)
- Shri K.T. Ramachandra, D.M.P.H.S. School (Regional College of Education) Mysore - 6.
- Shri Ram Prasad Saini, Govt. M.P.H.S. School, PISANGAN AJMER, Rajasthan.
- Shri J.P. Sharma, Govt. M.P.H.S. School, KEKRI (Raj).
- Shri Krishna Prasad Sharma, Govt. M.P.H.S. School, BHARATPUR (Rajasthan).
- Shri Bankat Raman Singh, Govt. Basic S.T.C. Training School, DHOLPUR (Rajasthan).
- Shri Bhopal Singh, Basic Teachers' Training College, SARDARSHAHN (Rajasthan).
- Shri Ram Richhpal Singh, A.S. Jat Inter College, Lakhaoti (Dist. Bulandshahr) U.P.
- Shri Surendra Pal Singh, Govt. Co-Educational Sec. School, MANDAWALI (Delhi).
- Shri Yash Pal Singh, Jat Inter College, MUZAFFARNAGAR, U.P.
- Shri Udai Pal Singh Sisodia, Govt. M.P.H.S. School, DEOLI (Tonk).
- Shri Mahak Singh Tomar, Jat Vedic Inter College, BARAUT (Dist. Meerut) U.P.
- Shri Radhey Shayam Upadhyaya, Maharawal M.P.H.S. School DUNGARPUR (Rajasthan).
- Shri Ganga Prasad Verma, M.C. Senior Basic School, G.T. Road II SHAHDARA (Delhi-32).
- Shri Hari Har Shayam Yadav, Govt. Basic S.T.C. Training School, NANTA PALACE (Dist. Kota) Rajasthan.
- Shri M.V. Yesurathnam, Methodist Rural High School, ZAHEERABAD (A.P.).

INAUGURAL SPEECH
SECOND ALL INDIA SUMMER INSTITUTE IN AGRICULTURE

MAY 1, 1967

BY

Wayne E. Schroeder
Chief of Party
The Ohio State University
Education Team in India - U.S.A.I.D.

As one result of its recent investigation, the Education Commission concluded that the teaching of agriculture at the high school stage has largely been a failure. The Education Commission came to this conclusion after considering the opinions of many persons. To those of us in the profession of teaching agriculture, this comes as a blow to our pride and efforts. However, the Commission did not indicate that there was no need for agricultural education, but simply that the programs were not successful and should be abolished.

To me and perhaps to you, this is an interesting conclusion in that many nations already depend heavily upon school level programs to supply trained manpower for agriculture or are in the process of developing such programs. These developments have been based upon research and experience which points up the importance of trained manpower for increased food production. One needs only to read the morning paper about the starving people and cattle in the State of Bihar to realize the importance of increasing food production in India.

Where do we begin to make agriculture teaching in high schools of India a success? Perhaps, we should think together about how we measure the success of our agricultural programs. Or, to put it another way - what do we expect an agriculture program to accomplish for a boy, his family and community? Education Officials frequently deplore the fact that boys do not settle on the land after completing agricultural training in high schools. Some of these same persons, contending that the program should prepare for farming, are reluctant to sanction additional resources for further program development and expansion until that condition is met.

Teachers of agriculture, on the other hand, often measure the success of their programs by how many of the students gain admission to college. These same teachers also become discouraged when

supposedly adequate facilities are not provided for their programs.

College of Agriculture Officials also get into the act, many times stating that science students are preferred over agriculture students for admission to the Colleges of Agriculture. A reasonable background of science is needed for higher studies at the degree level and students opting agriculture in the high school are not able to take sufficient science to succeed in college studies. They further contend that much of agriculture which is taught in the high school is covered again in college.

Why should the high school teach agriculture which should be taught in college and avoid the science which should be taught in high school? The college officials would generally favor some instruction in agriculture in the high school for college bound students if it does not interfere with other studies. Several States have explored the matter to various conclusions. The results thus far have not been exciting.

It is well and good for us to understand and listen to how others measure the accomplishments of our agriculture programs, but how do we measure and evaluate our programs. This is a much more important consideration for us, especially during the coming weeks of this Institute.

I believe that you should give thought to the matter of who is to be served by the agricultural programs in school and to what end. It is impossible to be everything to everyone. If your ultimate goal is that of producing young men for farming, then certainly the programs should probably cater to the barefoot boy from the village who will become the farmer. Present programming in most schools is not accomplishing this to an appreciable degree. Likewise, the training to be given should concentrate on those understandings and skills which will lead to farming proficiency. How many times have you asked yourself at the end of a day of teaching - Would my teaching today really lead to better farming?

Improvement in education obviously implies change and change must result from decisions by someone. There must have been times when we all have wanted to make some change in our teaching, but were unable to do so because it depended upon a decision by someone else. All of us operate within some kind of framework. In the case of teaching agriculture that framework is shaped considerably by the Department of Education within each State and is responsible for such

decisions as what the syllabus contains, how many periods of instruction shall be given and what equipment and facilities should be provided, to mention several.

Individual teachers feel quite helpless in initiating such changes because they do not have the necessary authority. And this is some times good. If every teacher went in his own separate direction, the State would obviously feel pretty hard pressed to underwrite every idea an individual teacher would want to implement. On the other hand, it would also be an unwise thing if a few officials made most of the decisions which affected the degree to which your programs succeed or fail.

It would seem that a partnership for change would be useful which bears some semblance of an organized approach. Effective change in education should be preceded by a careful analysis on the part of a group of persons, including teachers.

This Institute provides an excellent setting for analyzing problems in the teaching of agriculture. In addition to each of you developing some recommendations for your own action back in your school after this Institute, I would encourage the listing of several key recommendations, jointly prepared for the attention of Education officials and others. You represent all of India and a reasonable cross section of the teachers of agriculture. Your recommendations could help shape future policies. Such recommendations, however, should be consistent with an overall program objective. All recommendations should develop from what it is you hope to accomplish with your program with the boy enrolled in agriculture.

These recommendations might well include proposals for experimental programs. I think we would all agree that the present framework for your program lacks appeal for the boy who will become the farmer of tomorrow. There is too often a tendency to develop programs in the absence of reality. Sometimes the requirements of a program are such that it is difficult to train the persons for whom the program was originally intended. Why not start with a village boy who is destined to become a farmer and develop a program around his capacities?

Major emphasis during this Institute will be placed upon those changes which can be implemented during the next school year without any special sanction. Each of you teaches from a syllabus which has been prescribed by someone else. However, many of the major decisions

for implementing the syllabus are left to you. For example, how do you relate the principles of crop production to actual application in the field? In addition to teaching many understandings and skills in agriculture, how do you provide the students with effective training in management? How is agricultural instruction in school related to major problems faced by farmers in the community? Does your program have any special features which will help boys develop favorable attitudes toward farming as an occupation? How can effective planning be done to make certain that instruction is well spaced through the school year? How do you select, from the increasing mountain of information in agriculture, that portion which is of highest priority for your student? How are reference materials, including aids selected and fitted into your teaching program? I encourage you to continually ask yourself and others during this Institute what are ways that will contribute to more effective, meaningful agriculture programs. Constantly search for ideas that will make your program a success.

Today, then, marks both an important end as well as a beginning. An end to many months of planning, preceded by a hope and a desire on the part of a small but dedicated group of persons on the campus. Not to be overlooked is the fact that your Director, R.P. Singh and his staff, could have been planning for a less hectic summer, without this Institute. Today is also a beginning of a short but we hope a valuable period of several weeks for all of you. It could have been an easier period for you, also, without this Institute. And that would seem to be one of the best predictions of success for the institute as we meet here today. You are here because you have chosen to be here.

Best Wishes For A Successful Institute.

HOME PROJECTS AS A BASIS FOR INSTRUCTION IN AGRICULTURE

Committee No. 1 :

K.T. Ramachandra
G.S. Bansal
J.P. Sharma
Bhu Dayal
Bankat Raman Singh

Consultants:

G.P. Singh
V.C. Kimothi
L.E. Hedges

This is the Purpose

Students learn quicker and retain information longer when they see a need for the information presented in the classroom. If the usefulness or practicality of this information is not understood by the student, he may lose interest in school work and eventually drop out of school. Or, if he has a farm background and stays in school and eventually passes the higher secondary school examination, he may select a non-agricultural job. This loss of educated people has been especially serious in the farming business. This loss has resulted in a slowing down of the progress in overcoming our country's food shortage. Therefore, in agricultural education especially, the classroom teaching must be correlated with the actual real-life situation: production practices on the farm. This improvement in agricultural education should help retain farm boys in school and in the field of agriculture and to more effectively train them for the business of farming.

The specific purposes of this report are:

1. To present the need for the kind of programme of instruction in the schools that will help retain the farm boys passing higher secondary examinations.
2. To show how the teaching of agriculture in the higher secondary schools can be made more practical and meaningful to the students. This type of programme would retain more farms boys in school.
3. To enumerate the possible problems, along with their solutions, that are involved in establishing a practical (vocational) programme of agricultural education in the higher secondary schools.
4. To suggest possible types of home projects, and to prescribe an optimum size for them.

This is the Situation

1. Of each 100 students who begin Class 1, only 40 students complete Class 5. Of the 40 students in Class 5, only 18 reach Class 8. This is an 82 percent drop-out.
2. The overall agricultural curriculum in the higher secondary school is more subject-matter oriented than practical.
3. There are insufficient efforts being made to bring the teacher, the student, the parent and various agricultural agencies together for the achievement of accepted objectives of higher agricultural production.
4. Many higher educational authorities are not aware of the need for making the school experiences of the agricultural student develop into an actual business proposition under the guidance of an agricultural teacher.
5. The agricultural teacher is often burdened with extra duties and pinned down to a rigid school time-table.
6. The agricultural teacher lacks facilities for transportation and communication for supervision and guidance of students' farming programmes.
7. Intensive guidance by the teacher will probably involve him in the project even on closed holidays.
8. There is a need to motivate students to select a home project.
9. A large part of the overall curriculum to be carried by an agriculture student includes subjects like science, mathematics, and language which take needed time away from agricultural subjects, particularly home projects.

This we can Do

1. Start home projects in agriculture with interested students.
2. Develop a three or four year curriculum for higher secondary agriculture students designed on selective cum voluntary basis revolving around the students' production experiences in the home projects. The project would serve as a basis for teaching.
3. Enlist the cooperation of the parents and agricultural agencies for the execution of the home projects through an extension of teacher-student relationship.

4. Heads of institutions should be asked to watch and report on the progress of the projects based on the follow-up visits of the technical cum educational experts, to be known as agricultural consultants under the Director of Education. These consultants may also use their offices to make the cooperation of appropriate agricultural, educational, and other agencies available to those students and teachers engaged in home projects.
5. The work load of the teacher engaged in home project development and supervision should be reorganized in such a way so that he may have ample time for home project supervision and also conferences during the school hours with the students.
6. To insure effective supervision of home projects, the teacher should be provided transportation facilities, such as a cycle or cycle expense allowances.
7. The home projects to be undertaken may be limited to about 2 miles radius in rural areas and 3 miles in urban areas. If any student beyond this radius selects home projects, the teacher may be provided travelling allowances for supervising these home projects.
8. In-service training of about a week's duration should be arranged once a year to enable the agricultural teacher to improve his subject matter proficiency.
9. Whenever necessary, money incentives in the form of loans should be provided to students who have proved their suitability for the home projects.
10. The selection of home projects should be based on the following points:
 - a. Should be based on the interest of the students.
 - b. Practices should be appreciated by local people.
 - c. Social and cultural hindrances in adopting the practices should be considered.
 - d. Raw materials required for the project should be available at local markets.
11. The size of the home project should be large enough to enable the student to appreciate its profitability, but not so big as to hamper his attraction to the overall curriculum. The project should be of such scope as to provide for the development of a number of production skills, to challenge the student, and to provide the maximum educational and earning opportunities. With these points in view, a list of suitable home projects and their sizes are listed below:

List of Home Projects Adoptable to Indian Conditions

<u>Type of Home Projects</u>	<u>Suggested Size of Home Project for beginning students</u>	<u>Remarks</u>
1. Poultry Farming		a. Better if project start with young chicks. It helps students to learn in detail the management of birds.
a. Raising chicks	20 birds.	
b. Raising adult birds for egg purposes	10 birds.	
c. Raising adult birds for meat purposes	10 birds.	b. It is less expensive to start with chicks.
2. Beekeeping	2 Beehives	This project may also be used as a supplement with projects like flower gardening.
3. Sheep or Goat raising	1 or 2 animals	Sheep should be raised for mutton purposes. Goats should be raised for milk production.
4. Piggery	1 or 2 animals	Yorkshire breed may be selected because it is accustomed to confinement rearing.
5. Growing vegetable crops like beans, radish, cauliflower, cabbage, green chillies, tomatoes, brinjal, carrot, sweet potatoes, ladies finger, and others.	1/40th of an acre	It would be better if student adopts any one vegetable crop suitable to seasonal condition. This helps him to determine whether raising the vegetable crop is profitable.
6. Growing fruit crops like papaya, banana, pineapple, citrus and others.	1/40th of an acre	Any one of the fruit crop may be taken for the project.
7. Crop production:- includes paddy, wheat, sugarcane, potato, groundnut, hybrid varieties of jowar, maize and bajra.	1/40th of an acre	The crop may be taken according to its suitability to local conditions. Only one crop should be taken for a project by inexperienced student.
8. Fodder crops - Pusa napier grass, berseem and lucern.	1/40th of an acre	- do -

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ENTERPRISE RECORD KEEPING

Committee No. 2 : U.P.S. Sisodia
 E.N. Adak
 P.C. Jain
 V.K. Garg
 M.S. Tomar

Consultants: Daryl C. Sharp
 S.P. Singh
 V.C. Kimothi
 L.E. Hedges

This is the Purpose

Home projects without complete and accurate records is like having a watch without hands. A watch without hands may run perfectly, but if one cannot tell time what benefit is it to the owner? Likewise, a home project without records will be of very little educational value to the student because the student cannot evaluate either the development of the enterprise or his own mental growth as it relates to agricultural education.

The student must have a method of measuring his ability to implement agriculture knowledge and skills into practice. This is necessary so that the problems arising in practice may be identified and intelligent solutions made which will result in a more abundant and profitable agricultural enterprise for him. Enterprise records correctly done on home and school projects will provide an agricultural education and occupational progress.

This is the Situation

1. Most farmers do not keep the type of production records that provide the efficiency factors of production.
2. Farmers need help in understanding the value of improved production practices.
3. Agricultural students need to understand that farming can be profitable.
4. If home project experiences are to be effective, records need to be kept that measure the effectiveness of these experiences.
5. Agricultural students need to be trained to understand and keep adequate farm records.
6. Home projects need to be organized and conducted on a "business-like" basis.

This we can Do

1. Use the "Enterprise Record For Secondary School Students In Agriculture" for all home projects.

In using this record book, students would establish goals for the projects, prepare budgets and written business agreements. They would keep a record of income and expenses. At the close of the project, they would summarize the records and analyze the effectiveness of the production practices they followed.

2. Teach enterprise record keeping as a part of the annual programme of instruction in each class.
3. Whenever practical, use home project enterprise record data in the classroom teaching.
4. Use the summaries and analysis of the project records in teaching. This practice will show the effectiveness of approved production practices.
5. Check all project record books when visiting home projects. Assist the student with any record keeping problems.
6. Help the students make management decisions based on their enterprise records. Help them develop the ability to solve problems, using accurate data.
7. As an incentive measure, give awards to students having the most outstanding enterprise records.
8. Use the suggested teaching unit on "Enterprise Records". (Teachers may want to adapt this unit to their own local situations. Home projects and enterprise record keeping may be new to many teachers. The following unit on "Enterprise Records" is intended as a guide for the teacher when he first teaches these units.)

UNIT - TEACHING ENTERPRISE RECORDS

by D. C. Sharp
Regional College of Education
Mysore

Problem I - Relating subject matter instruction with practice to benefit students with their home projects.

Teaching Objectives - For teacher of agriculture:

1. To organize student learning activities to complement agricultural practice.
2. To direct students to learn and understand agricultural approved practices.
3. To direct students to form positive attitudes toward approved practices in agriculture.
4. To supervise students in financially successful home projects and other practical ventures in agriculture.
5. To direct students to implement approved practices learned.

Motivation - Home projects of students must be considered as a means for a student to implement his agricultural knowledge into a profitable, useful, and practical type of farming which will provide a favorable income for the labor and management contributed to the home project. When this is implemented students, parents, headmasters, D.P.I.'s and the centre will accept the concept of home projects. Agriculture education will have succeeded in the attempt to provide for an abundant and profitable agriculture for the Indian farmer.

Steps agriculture teachers can take to implement the association of "theory to practice":

1. Provide a practical and financially successful demonstration of accepted approved practices in the various crop and livestock enterprises on the school farm.
2. Provide students with the practical skill proficiency in these enterprises to contribute to success in his home projects.
3. Organize subject matter so that it will contribute to the students success with their home projects.

Possibilities:

- a. Syllabus as listed in each state.

- b. Students select projects. Construct syllabus around the educational needs of the students.
- c. Organize syllabus and presentation so that it will be so interesting, challenging and informative that students will see the opportunities in farming and will want to get into business.
- 4. Direct the implementation of the approved practices on the school farm enterprises and with student home projects.
- 5. Keep records on all school farm enterprises. Summarize and analyze the records and use as instructional aids in teaching.
- 6. Direct students in keeping home project records so that they may evaluate their success in the enterprise.

* * * * *

Problem II - Why keep enterprise records on home and school projects ?

- Teaching Objectives -
- 1. To enable students to understand the necessity of keeping Enterprise Records on their home and school projects.
 - 2. To develop an attitude in students to keep complete and accurate enterprise records of their school and home projects.

Motivation - Home and School projects without records are like a clock without hands. A clock without hands may run but how can one tell the time. A school or home project may provide practical experiences, but how can one measure the effectiveness of these experiences in terms of profitable agricultural operations unless complete and accurate records are kept.

Sub-Problems - Questions

Some solutions

- | | |
|--|--|
| <ul style="list-style-type: none"> 1. What are the essentials in implementing complete, accurate, and useful enterprise records ? | <ul style="list-style-type: none"> 1. Develop the ability to: <ul style="list-style-type: none"> a. Determine realistic goals and objectives. b. Develop realistic budgets and agreements. c. Inventory the enterprise. d. Assess and record labour and machinery costs. e. Assess and record supply and miscellaneous costs. f. Assess and record products sold and used at home. g. Summarize and analyze enterprise records. |
|--|--|

2. What benefits may be derived from keeping complete and accurate records on school and home projects?

h. Use the information from the summary and analysis in evaluating the student's behaviour and desirable changes required by the student for his improvement.

2. a. Knowledgeable of the various inputs itemized for evaluation.

b. Knowledgeable of the various returns itemized for evaluation.

c. Knowledgeable of the budget inputs and returns.

d. Knowledgeable of the operational dates concerning the enterprise.

e. Knowledgeable of inventories.

f. Knowledgeable of the production goals.

g. Knowledgeable of the practice selected and implemented.

h. Data available for analyzing project for purposes of improvement.

i. Avails the opportunity to assess the value of unpaid labour and the management of the enterprise.

j. A well-kept record will direct students to the proper chances for success in an enterprise.

k. A well-kept record will assist students in securing a loan, land, and even part or full-time employment in an agricultural related occupation.

1. Good projects and enterprise records should progressively establish the student into the business of profitable farming.

Teacher's Decision - I shall have all my students keep complete and accurate enterprise records on all their home projects so that they may be more effectively directed in the various enterprises of farming.

Problem III - Development of simply stated, challenging, attainable and measurable enterprise goals.

Teaching Objectives: To develop the ability of students to:

1. Identify enterprise goals.
2. Select goals for enterprise projects that are simply stated, challenging, attainable and measurable.
3. Evaluate goals as they relate to a productive and profitable enterprise agriculture.
4. Evaluate the enterprise project on the basis of the goals selected.

Motivation - A progressive farmer once said, "You are never at the top - just trying to get there". Profit in the various agricultural enterprises usually comes to those producers in the upper 50%. Are you going to establish those production goals which will be the top profit and production goals?

Sub-Problems - Questions

Some solutions

- | | |
|--|--|
| 1. What is a goal? | 1. Endeavour or effort to the achievement of a purpose. |
| 2. What are some desirable characteristics of goals for enterprise projects? | 2. a. They should be simply stated. Students will need to understand the goals and not become entangled in long complicated sentences.

b. They should be challenging. Goals need to be challenging to the point where an effort is required for attainment and they should require the implementation of a major share of the recognized improved practices for the enterprise for accomplishment. A profitable income and production should be realized when the goal is attained. |

- c. The goal should be attainable for those implementing the recognized improved practice.
 - d. The goal should be measurable in order for the student to evaluate the attainment.
3. What are the various production areas of an enterprise in which one should establish goals?
3. Goals should be established in any area that will influence profitable production:
- a. Yield
 - b. Quality of production
 - c. Cost of production
 - d. Return per unit of production
 - e. Losses or mortality
 - f. Man labour per unit of production
 - g. Machinery cost per unit of production.
4. List examples of some goals for various enterprises fulfilling the characteristics of a desirable goal.
4. a. Poultry - To produce 200 egg per pullet housed.
- b. Maize - To produce 25 quintal of (15.5% moisture) shelled grains per acre.
- c. Paddy - To produce 25 quintal of (15% moisture) paddy per acre.
- d. Wheat - To produce wheat of test weight of 60# per measure bushel.
- e. Cow - To produce 5000 litre milk per year per cow.
- f. To produce eggs for 18 paise egg.

Teacher's Decision - An enterprise goal should represent an effort for its achievement. The goal should be clearly and simply stated, challenging, attainable and measurable.

Problem IV - Budgeting for the maize enterprise.

- Teaching Objectives -
1. To enable students to budget for expenses, returns, and labour and management returns from their enterprise projects before becoming involved.
 2. To enable students to arrange for inventories, supplies and miscellaneous items in advance of the need.

Motivation - One usually enjoys that in which he is comparatively successful. How are the chances for success in maize production in your situation? Are the necessary inputs available? What are the comparative possibilities for income-food-and feed?

Sub-problems - Questions

Some solutions

- | | |
|--|---|
| 1. What is a budget? | 1. a. The budget is an estimate of all costs and returns anticipated during the production of the enterprise, developed before the enterprise begins in order to serve as a guide to planning. |
| 2. What is the crop scope and production period? | 2. a. The kind of enterprise must be selected.

b. The actual scope for the enterprise may be selected or an accepted unit such as one acre may be used if the actual scope has not been decided. |
| 3. How are quantities determined? | 3. a. From the approved practices for production accepted by the individual involved in the enterprise.

b. From governmental statistics, experimental data and previous home project data.

c. From the experiences of the students in the class, assessed in relation to a and b. |
| 4. How are unit prices determined? | 4. a. Unit prices should be considered as the on-farm price unless the cost for marketing is included in miscellaneous costs.

b. Generally, prices quoted at the regulated market or the co-operatives may be considered reliable for the budget. |

- | | |
|--|--|
| <p>5. The total value ?</p> <p>6. Student - other party ?</p> <p>7. Estimated returns ?</p> <p style="padding-left: 20px;">a. Closing inventory</p> <p style="padding-left: 20px;">b. Crop products sold or used at home</p> <p style="padding-left: 20px;">c. Straw, fodder</p> <p style="padding-left: 20px;">d. Other products</p> <p style="padding-left: 20px;">e. Total estimated returns</p> <p>8. Estimated expenses ?</p> <p style="padding-left: 20px;">a. Beginning Inventory</p> <p style="padding-left: 20px;">b. Use of land</p> | <p>5. a. Quantity times the price per unit.</p> <p>6. a. Refers to the student-other party share of the cost or the return as stated in the agreement.</p> <p>7.</p> <p style="padding-left: 20px;">a. Include all items produced or beginning inventory not sold used at home at the close of project.</p> <p style="padding-left: 20px;">b. List actual sold or saleable products used at home.</p> <p style="padding-left: 20px;">c. Consider carefully fodder weights and values because they fluctuate depending on moisture, season. Dry fodder weight should be considered for recording purposes unless otherwise listed. Dry fodder weight may be about equal to dry grain weight.</p> <p style="padding-left: 20px;">d. May include fertilizer, manure, and fertilizer carry over or soil productivity credits that may be due the enterprise.</p> <p style="padding-left: 20px;">e. For purposes of computation of labour income.</p> <p>8.</p> <p style="padding-left: 20px;">a. Inventories are those items which are not generally consumable but are necessary for production.</p> <p style="padding-left: 20px;">b. Value may be determined by the actual costs for the time the land is used. Productivity of the land should also be considered.</p> |
|--|--|

- | | |
|---|---|
| c. Seed, seedlings, fertilizer, manures and seed treatments and dusts | c. Estimate should be based upon the accepted approved practices. |
| d. Machinery and equipment | d. Consider the actual time used including the time preparing tools for use and taking to and from field. |
| e. Irrigation | e. Computation of acre-inches or centimeters of water used times the cost per acre inch. |
| f. Other costs | f. Include all other costs not included elsewhere. |
| 9. Total estimated expenses ? | 9. a. Is a total of all expenses as listed. |
| 10. Total estimated labour and management income ? | 10. a. This is the payment for unpaid labour involved in project + the value of management. |

Teacher's Decision - The budget will be completed in every detail preliminary to the inauguration of the enterprise project. It will be done after a thorough study of the enterprise and after definite decisions concerning the approved practices to be followed have been determined by the student.

* * * * *

Problem V - Enterprise Agreements

Teaching Objectives - To develop the ability of students to:

1. Understand the minimum requirements of an enterprise agreement.
2. Write an enterprise agreement for their home project.
3. Accept physical and financial responsibility for their behavior in reference to home projects.

Motivation - There is a saying among many of the wise old cultivators and enlightened youngsters that it is the son's heifer and father's cow - the son's chicks and father's hens - the son's garden and father's vegetables. What approach can be taken to teaching enterprise agreements when one considers joint family relationships, basic family needs and the many cultural aspects of the rural Indian Society ?

Sub-problems-QuestionsSolutions and Answers

- | | |
|---|--|
| <p>1. What are the minimum requirements of a sound enterprise agreement ?</p> | <p>1. a. Kind of enterprise, size of enterprise, the duration of the enterprise or the cycle, and the location of the enterprise.</p> <p>b. The persons involved in the project need to agree on the terms of the agreement and sign the agreement.</p> <p>c. The agreement should be witnessed.</p> <p>d. All parties need to state their contribution to the enterprise.</p> <p>e. All parties need to state their expected benefits or returns from the enterprise.</p> <p>f. Any change in the agreement should be added as an amendment, dated and initialed by all persons included in the enterprise.</p> |
| <p>2. When should the agreement be terminated ?</p> | <p>2. a. When all the terms of the agreement have been fulfilled by all parties concerned.</p> |
| <p>3. Why have agreements for home projects ?</p> | <p>3. a. For the purpose of having a complete and satisfactory understanding among all parties concerned in the production of an enterprise project.</p> <p>b. A definite agreement should be written, dated, signed, witnessed and delivered to all parties involved.</p> |

Teacher's Decision - All students will develop a fair and practical agreement concerning the kind, size, duration, location, financial responsibility, and the division of the production or returns from their enterprise projects. Revisions made after the agreement has been made will be added if agreed upon by all parties concerned. The agreement will be signed by all parties concerned.

Problem VI - What approved practices will be required to meet the accepted enterprise goals in maize ?

Teaching Objectives - To develop the ability in the student to:

1. Identify an approved practice in maize.
2. Select approved practices that will contribute to the accomplishment of the selected goals.
3. Understand the approved practices that will contribute to the accomplishment of the selected goals.
4. Accept the approved practices that will contribute to the accomplishment of the selected goals.
5. Implement the approved practices that will contribute to the accomplishment of selected goals.

Motivation - Students could be taken on a field trip to a very progressive farmer producing maize to visualize some of the practices followed by him, and associate his approved practices to success in farming and his recognition.

Sub-problems - Questions

Some solutions

- | | |
|---|---|
| <p>1. What influence has approved practices upon the success of the maize project ?</p> | <p>1. a. Approved practices are tried and proven research that has positively influenced yield and profit in production.</p> <p>b. Yield is one of the most influential factors affecting successful production.</p> <p>c. Profit is the encouragement that keeps the cultivator in business.</p> |
| <p>2. What approved practices will contribute to the fulfillment of goals established for maize ?</p> | <p>2. a. Select a sandy, loam soil comparatively high in organic matter and well drained.</p> <p>b. Plough 8"-10" deep and work the land fine and level.</p> <p>c. Use a high yielding, adapted hybrid.</p> <p>d. Plant with the moisture season (April 15 and October 15 in Mysore)</p> |

- e. Plant maize in 24" to 30" rows, 8" to 12" apart in the row.
- f. Plant maize 1 1/2" to 2" deep.
- g. Use
 - i. 25 kg. M per A } At planting
 80 kg. P₂O₅ } time in bands
 15 kg. K₂O } 3" to either
 } side and 3"
 } deeper than
 } the maize is
 } planted.
 - ii. Broadcast and mix with the topsoil between the rows
 25 kg. nitrogen per acre
 when the maize is knee high.
- h. Use 8-10 # of 5-6% aldrin per acre mixed with the top soil at planting time.
- i. Cultivate periodically not more than 3" deep to control weeds, until the maize is knee high.
- j. Supply water periodically as needed. Maize should not be allowed to wilt especially during the blooming stage.
- k. Apply 7 # per acre of endrin granules to the whorls of the maize to control stem borers. Control foliage pests by spraying with endrin (.75-1.5 litre of 20% emulsion per 100 gal. of water) or BHC (2.5 kg. of 50% wettable powder per 100 gal. of water). Also protect maize from birds.
- l. Harvest maize when the grain moisture content is below 25%. If no damage is being incurred by birds, insects, rodents, or animals, retard harvest until grain is below 20% moisture

Teacher's Decision - A complete list of approved practices will be identified, studied, understood, and accepted by the students before the student becomes involved in home project. After involvement every encouragement will be given to cause the student to implement the approved practices accepted by the student.

* * * * *

Problem VII - Inventories

Teaching Objectives - To develop the ability of students to:

1. Determine items to be included in the inventory.
2. Determine depreciation or appreciation schedules for inventoried items.
3. Consider the inventory as a cost or a return.

Motivation - Often times one fails to assess the advantages and disadvantages associated with being in business. We often consider one of the advantages as the ability to gain net worth in the form of inventories without considering the gain as income until it is disposed of. Disadvantages may be that of having capital invested bringing in a comparatively low return and it may be in a form that cannot be withdrawn for other needs on the spur of the moment. Let us consider the inventory investment in this enterprise.

Sub-problems - Questions

Some solutions

- | | |
|--|---|
| <p>1. What are the items to consider in inventories of the maize enterprise?</p> | <p>1. a. The land if it is owned by the operator.</p> <p>b. Soil productivity in the form of green manure - manure - or fertilizer residues may be considered.</p> <p>c. Crops not sold or used at home that may be in storage at the close of the project.</p> |
| <p>2. How can one arrive at a depreciation schedule?</p> | <p>2. a. Take the present value minus salvage and divide it by the years of usable life and prorate to the enterprise.</p> |

- | | |
|--|---|
| 3. How can one arrive at an appreciation schedule? | 3. a. Take the expected appreciation value, divide it by the appreciation years and add the yearly or prorated amount to the present value. |
| 4. Are inventories costs or returns in reference to this enterprise accounting system? | 4. a. In the budget they are both costs and returns.
b. In the summary an increase in inventory is considered as a return and a decrease in inventory is considered as a cost. |

Teacher's Decision - Complete and accurate inventories will be taken at the beginning and the close of all enterprise projects in order to distinguish the cost return from the return in kind. Depreciation and appreciation schedules will be established, computed, and entered in order to have a true picture of the probability of the enterprise.

* * * * *

Problem VIII - Keeping record of labour and machinery.

Teaching Objectives - To develop the ability of students to:

1. Record labour and machinery used correctly.
2. Record jobs as they are done.
3. Associate unpaid labour with labour income and paid labour as a cash expense.
4. Associate unpaid machinery with depreciation - interest on investment - insurance and upkeep which may be prorated in the inventory. List the paid machinery as an immediate direct cost.

Motivation - Man labour vs. machinery is one of the most controversial subjects concerning Indian agriculture today. When do we use machinery and when is man labour more economical? A complete analysis of the labour involved in the project may indicate some direction to take in reference to man labour vs. machinery investment.

Sub-problems - QuestionsSome solutions

- | | |
|---|---|
| 1. When should labour and machinery operations be posted? | 1. a. Immediately after the operation is completed as the record may affect decisions later resulting from the summary and analysis of the project. |
| 2. What costs or values should be used? | 2. a. The actual costs or the values prevalent in the community. |
| 3. Should family labour be considered as paid or unpaid labour? | 3. a. If they are paid consider as such; if not, they are unpaid. A student may help his parents and parents assist students in return with no money exchange. In this case, list as unpaid labour. |
| 4. Should family machinery be considered paid or unpaid? | 4. a. It would probably be easier to pay for the use of family machinery unless the student shares in the ownership. |

Teacher's Decision - Students will keep an accurate up-to-date record of all labour and machinery operations and assess them as paid or unpaid. They will consider the use of family owned machinery and power as paid.

* * * * *

Problem IX - Keeping rainfall and irrigation records.

Teaching Objectives - To develop in the students the ability to:

1. Keep complete and accurate rainfall records.
2. Keep complete and accurate irrigation records.
3. To assess a cost or value to irrigation water.

Motivation - How much water is necessary to produce a maize crop and from where does it come? This is a question students may get answered if they keep a detailed accurate account of rainfall and irrigation provided the maize crop.

Sub-problems - QuestionsSome solutions

- | | |
|--|---|
| 1. How can one determine rainfall accurately ? | 1. a. Use a commercial or home made rain gauge located near the maize plot. Rain fall should be calculated in acre centimeters or acre inches. |
| 2. How can the student accurately determine acre-centimeters of irrigation water ? | 2. a. Volume x Rate of flow x Time (opportunity for students to originate a scheme and demonstrate to class).

b. Volume actually paid for.

c. If pump is used (pump capacity times hours pumped).

d. An acre inch of water = 27,154 gal. |
| 3. How can one assess the cost of the water used ? | 3. a. Use the actual cost of irrigated water.

b. Use the cost of pumping or lifting the water plus the value of the water in the well.

c. How is 40 paise per 1000 gal. |

Teacher's Decision - Students will keep accurate and up-to-date records on all rain and irrigated water received by the maize by using a rain gauge and determining the acre inches of irrigation water used. (Use the pump capacity x the time pumped and divide by 27,154 to give the acre inches of water or use the gallonage flow from the irrigation ditch and divide by 27,154 to determine acre inches).

* * * * *

Problem X - Recording supplies and miscellaneous costs.

Teaching Objectives - To develop in the students the ability to:

1. Keep a record of supplies and miscellaneous costs of the project other than labour, machinery, and irrigation water.

Motivation - Supplies are costly. Should receipted cash bills be kept and recorded immediately in the record book or is the chance going to be taken in paying the bills over again? How is a record of supply costs of value to a producer in planning next year's operations?

Sub-problems - Questions

Some solutions

- | | |
|---|--|
| 1. How is the cost for the use of land determined? | 1. a. Use the going market rental rate, or
b. Capitalize the value of the land interest on investment + taxes, or
c. Use your actual cost for use. |
| 2. What price should be used in determining supply costs? | 2. a. The actual cost price plus the transportation to the farm, (Bhakhshis included) |
| 3. How can the student's share be determined? | 3. a. Student's share is determined on the basis of the agreement. |
| 4. When should supply and miscellaneous costs be entered? | 4. a. Enter supply and miscellaneous costs immediately when received and keep cash bill as evidence of payment. |

Teacher's Decision - The record of supplies will be kept up-to-date as expenses are incurred using actual cost + transportation for delivering the supplies and miscellaneous materials to the farm.

Problem XI - Recording crop products sold or used at home.

Teaching Objectives -To develop in the students the ability to:

1. Properly record crop products sold or used at home.
2. Associate the importance of high production and good price to profitable maize production.
3. To accurately assess volumes, weights, and price of maize to quality and production.

Motivation - Can a production value assessment be made of maize production if a part is sold, part is used at home for human consumption, part for livestock production and a part for seed? Do we always make these associations in determining the profitability of an enterprise?

Sub-problems - Questions

1. What precautions need be taken in posting?

Some solutions

1. a. The date should be associated with the actual transaction for purposes of analyzation.
- b. The description needs to be indicated as to whether maize was sold on open market, for human consumption at home, livestock feed at home or seed. This may be used as an explanation for differences in price.
- c. Quantity should be in weight measure rather than volume measure (Kgs. or quintals). A rule to follow is to follow the system used in price quotations at the cooperatives or regulated market. Total the main product in one weight measure such as kgs.
- d. Use at-home price per unit unless the cost for transporting to market is considered in miscellaneous costs.
- e. Total value is the quantity times the price per unit.

- f. The student share is that part of the total value as predetermined by the agreement.
- g. Total the quantity of main product (the grain), the total value and the student share.

Teacher's Decision - Crop products sold or used at home will be posted immediately after the transaction is made. The complete description of the product and type of disposition, quantity in kgs. or quintals and using on-the-farm price should be given. The total value will be determined by multiplying the quantity by the price per unit and the students share will be that part of the total value predetermined by the agreement.

* * * * *

Problem XII - Summary of the Crop Enterprise.

Teaching Objectives - To develop in the student the ability to:

1. Collect and post all returns in the proper place in the summary.
2. Collect and post all expenses in the proper place in the summary.
3. To compute and understand labour and management income.

Motivation - How many Rupees per day were made on the labour used in the maize project? How does this compare with other work and management that could have been done by the student? Could this be improved? What are the possibilities of developing this enterprise into a business for the student?

Sub-problems - Questions

1. What is to be listed under returns?

Some solutions

1. a. The increase in inventory from page 5, item C (Enterprise Record Book) including the quantity if a part of the main product (maize), the total value of the increase, and the shares as are listed on page 5.

- b. Post the crop products sold or used at home as listed on page 9, including quantities of shelled maize, and fodder, the total value of each, and the shares. Assume the difference between student and the total as being other party.
 - c. Other returns should be other than the main product, such as manure carryover, fertilizer carryover, etc.
 - d. Total returns page 10 A.
- 2. What is to be listed under expenses ?
 - 2. a. Decrease in inventory page 5, item D. Quantities, total value and shares should be entered as listed on page 5.
 - b. Paid labour total as listed on page 6 B.
 - c. Paid machinery total as listed on page 6.
 - d. Irrigation total as listed on page 7.
 - e. Supplies and other costs total as listed on page 8.
- 3. What is labour and management income ?
 - 3. a. It is A (Total enterprise returns minus B (Total enterprise expenses))
 - b. It represents the return for hours of unpaid labour and management contributed by the student.
 - c. If C, page 10 (Labour and management income) is divided by the total hours of unpaid labour, an evaluation of the students effectiveness in implementing his instruction may be made.

CROP ENTERPRISE RECORD
for
Secondary School Students in Agriculture



Developed and Printed
by
The Regional Colleges of Education
and
The Ohio State University Education Faculty in India
November 1966

Name of Student _____ Age _____
Class _____ School Year _____
Crop _____ Season _____ Acres _____
Starting Date _____ Closing Date _____
Checked and Approved by _____ Teacher. Date _____

CROP ENTERPRISE AGREEMENT

Under each paragraph heading state all points so clearly that there will be a full and complete understanding among all parties. Be sure to have all items in the budget in agreement with the items on this page.

Be definite in stating what part or share of each item of the production costs will be furnished by each party. "Furnish" means to be financially responsible, regardless of the source from which the items originate. In describing how the returns will be divided, state the shares in terms of production or sales, as is done when a crop is shared. Later changes in the agreement must be agreed upon by all parties and recorded on this page.

1. Kind, size, duration and location of the enterprise :

2. What the student will furnish :

3. What the other party will furnish :

4. What returns the student will receive :

5. What returns the other party will receive :

Signed _____

Student

Signed _____

Other Party

Approved _____

Other Party

Approved _____

Agriculture Teacher

BUDGET FOR CROP ENTERPRISE

The budget is an estimate of all costs and returns anticipated during the production of the crop. It should be developed before the enterprise begins in order to serve as a guide to financial planning. Sources of information such as local prices, government statistics, experimental data and other available information may be used in the development of the budget.

CROP _____ ACRES _____ PRODUCTION PERIOD _____ 19 ____ to _____ 19 ____

ESTIMATED RETURNS

Description	Quantity	Price Per Unit		Total Value		Student		Other Party	
		Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
Closing Inventory									
Crop Products Sold or Used									
Straw, Fodder									
Other Products									
(A) TOTAL ESTIMATED RETURNS									

ESTIMATED EXPENSES

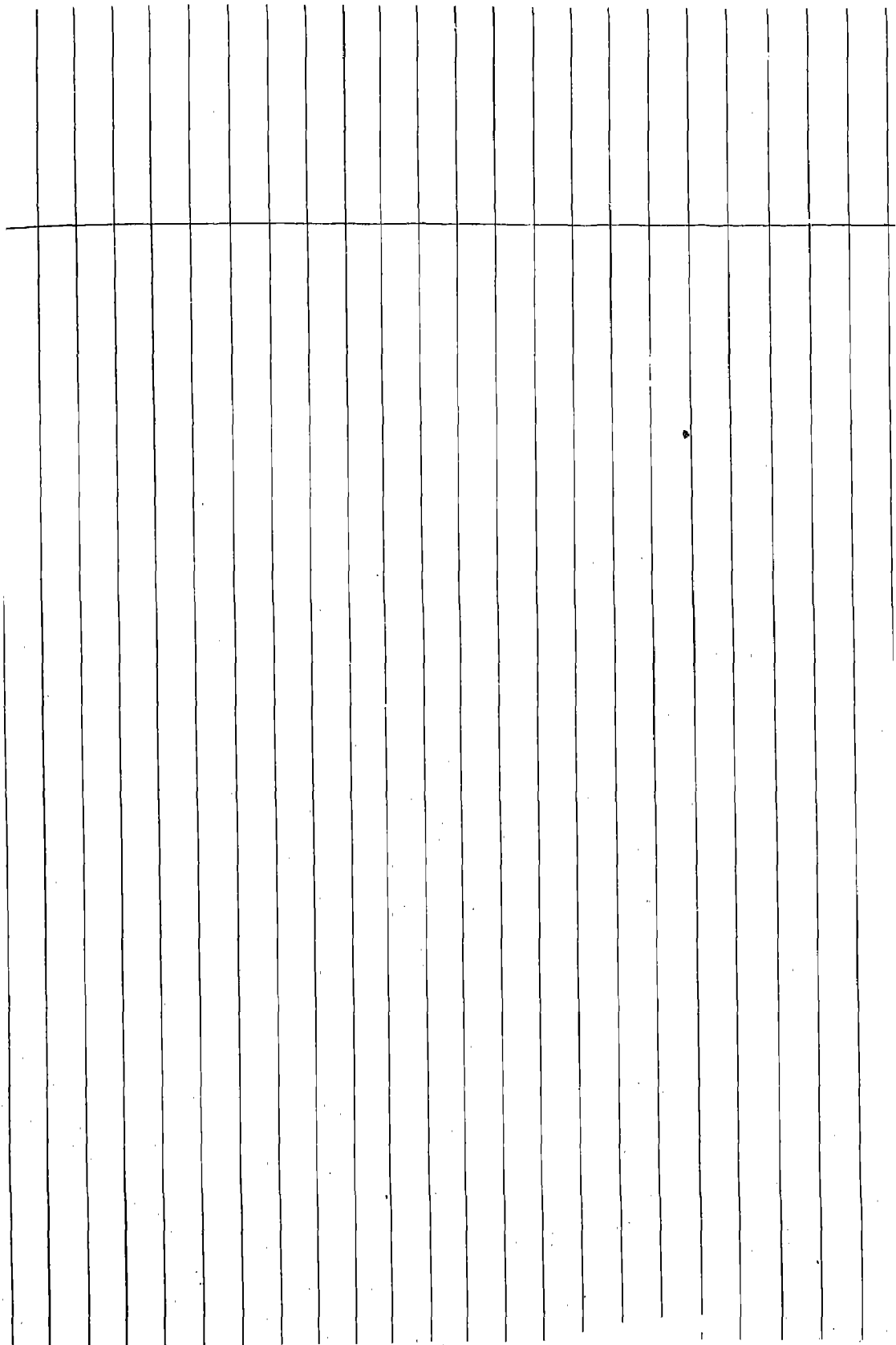
Description	Quantity	Price Per Unit		Total Value		Student		Other Party	
		Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
Beginning Inventory									
Use of Land									
Seed, Seedlings									
Fertiliser									
Manure, Compost									
Seed Treatment, Sprays, Dusts									
Machinery and Equipment									
Irrigation									
Other Costs									
(B) TOTAL ESTIMATED EXPENSES									
(C) TOTAL ESTIMATED LABOUR AND MANAGEMENT INCOME (A minus B)									

Goals should be developed before the enterprise begins and should be based upon the budget. They should be stated clearly and simply and be challenging, attainable and measurable. Achievements should be entered as they are determined throughout the crop production cycle.

APPROVED PRACTICES

The approved practices to be carried out in the enterprise should be listed in a logical sequence, beginning with preparation of the seedbed and the date on which each practice is completed in the appropriate column. They should be continued through harvesting, storing and marketing. Enter

[illegible]



INVENTORIES OF CROP ENTERPRISE

The beginning inventory is used only for perennial crops, such as fruit trees, etc. Supplies on hand before the start of an annual crop should be entered on the supplies page as they are used. Include all items in the closing inventory which have not been sold or used before the time for closing the inventory.

BEGINNING INVENTORY

Description	Quantity	Price Per Unit		Total Value		Student Share	
		Rs.	P.	Rs.	P.	Rs.	P.
(A) Total Beginning inventory							

CLOSING INVENTORY

Description	Quantity	Price Per Unit		Total Value		Student Share	
		Rs.	P.	Rs.	P.	Rs.	P.
(B) Total Closing Inventory							
(C) Increase in Inventory (B minus A)							
(D) Decrease in Inventory (A minus B)							

[illegible]

RAINFALL AND IRRIGATION RECORD

Enter quantities of which have been applied to the field (rainfall and irrigation) from the time of seedbed preparation until the time of harvest. Use a separate line for each date that water is applied. Record the quantities of water in centimetres per acre. Enter all the costs of irrigation, including the cost of water, power and machinery, and any paid labour. Any share of the cost furnished by the student should be entered in the last column.

[illegible]

SUPPLIES AND MISCELLANEOUS COSTS

This record includes all operating expenses other than for irrigation, labour and machinery. Enter seed, fertiliser, compost, sprays, dusts and other supplies used. The charge for use of land should include costs of taxes, fencing and a reasonable charge based upon the value of the land. Enter the actual amount paid to the landlord if the land is leased.

[illegible]

TOTAL

CROP PRODUCTS SOLD OR USED AT HOME

Enter the total value of those products which are sold. Commissions, marketing costs or other deductions from the total value should be entered on page 7. Products used at home should be entered according to current market value at the time used. Products stored for future use or sale should be entered in the closing inventory page 2 and not in this record.

[illegible]

SUMMARY OF CROP ENTERPRISE

RETURNS							
Description	Quantity	Total Value		Student Share		Other Party	
		Rs.	P.	Rs.	P.	Rs.	P.
Increase in Inventory (Page 5) Item C							
Crop products sold or used at home (Page 6)							
Other							
(A) TOTAL ENTERPRISE RETURNS							

EXPENSES							
Description	Quantity	Total Value		Student Share		Other Party	
		Rs.	P.	Rs.	P.	Rs.	P.
Decrease in Inventory (Page 5) Item D							
Paid Labour (Page 7) B							
Paid Machinery (Page 7) C							
Irrigation Costs (Page 8)							
Supplies and other Costs (Page 9)							
(B) TOTAL ENTERPRISE EXPENSES							
(C) TOTAL LABOUR AND MANAGEMENT INCOME (A minus B)							

ANALYSIS OF CROP ENTERPRISE

	Total	Unit
Yield (Main product)		
Value marketed or inventoried (Main product)		
Cost of production of main product		
Labour and management income (Unit = Acre)		
Labour and management income per hour of unpaid labour (C page 10 ÷ by A page 7)	x x x	

ANALYSIS OF CROP ENTERPRISE (Continued)

1 of crop _____

es grown _____

son _____

ation (District and State) _____

type _____

analysis (Nitrogen) _____

(Phosphorous) _____

(Potassium) _____

ety of seeds (seedlings) _____

bunt of seed (seedlings) per acre _____

d treatment used _____

e of planting _____

od of planting _____

il number of days from planting to harvest _____

nds of fertiliser applied per acre _____

lysis of fertiliser used _____

nds of manure and compost per acre _____

t nutrients added (Nitrogen) _____

(Phosphorous) _____

(Potassium) _____

imetres of irrigation water per acre _____

imetres of rainfall per acre _____

osal of main product (sold, stored) _____

r comments _____

LIVESTOCK ENTERPRISE RECORD
for
Secondary School Students in Agriculture



Developed and Printed
by
The Regional Colleges of Education
and
The Ohio State University Education Faculty in India
November 1966

Name of Student _____ Age _____
Class _____ School Year _____
Livestock _____
Starting Date _____ Closing Date _____
Checked and Approved by _____ Teacher. Date _____

LIVESTOCK ENTERPRISE AGREEMENT

Under each paragraph heading state all points so clearly that there will be a full and complete understanding among all parties. Be sure to have all items in the budget in agreement with the items on this page.

Be definite in stating what part or share of each item of the production costs will be furnished by each party. "Furnish" means to be financially responsible, regardless of the source from which the items originate. In describing how the returns will be divided, state the shares in terms of production or sales, as is done when livestock is shared or rented. Later changes in the agreement must be agreed upon by all parties and recorded on this page.

1. Kind, size, duration and location of the enterprise :

2. What the student will furnish :

3. What the other party will furnish :

4. What returns the student will receive :

5. What returns the other party will receive :

Signed _____

Student

Signed _____

Other Party

Approved _____

Other Party

Approved _____

Agriculture Teacher

BUDGET FOR LIVESTOCK ENTERPRISE

In making this budget, use amounts and prices based on enterprise records, experimental data, and agricultural forecasts. Use this budget as a guide in developing an enterprise agreement which will be fair to both parties, and to determine the amount of cash, feed, supplies, etc. needed to carry out the enterprise.

NO. AND KIND OF ANIMALS	PRODUCTION PERIOD _____ 19__ to _____ 19__
-------------------------	--

ESTIMATED RETURNS

Description	Number, Amount	Price Per Unit		Total Value		Student		Other Party	
		Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
Animals produced									
Animal products									
Original producing animals									
Value of manure									
(A) TOTAL ESTIMATED RETURNS									

ESTIMATED EXPENSES

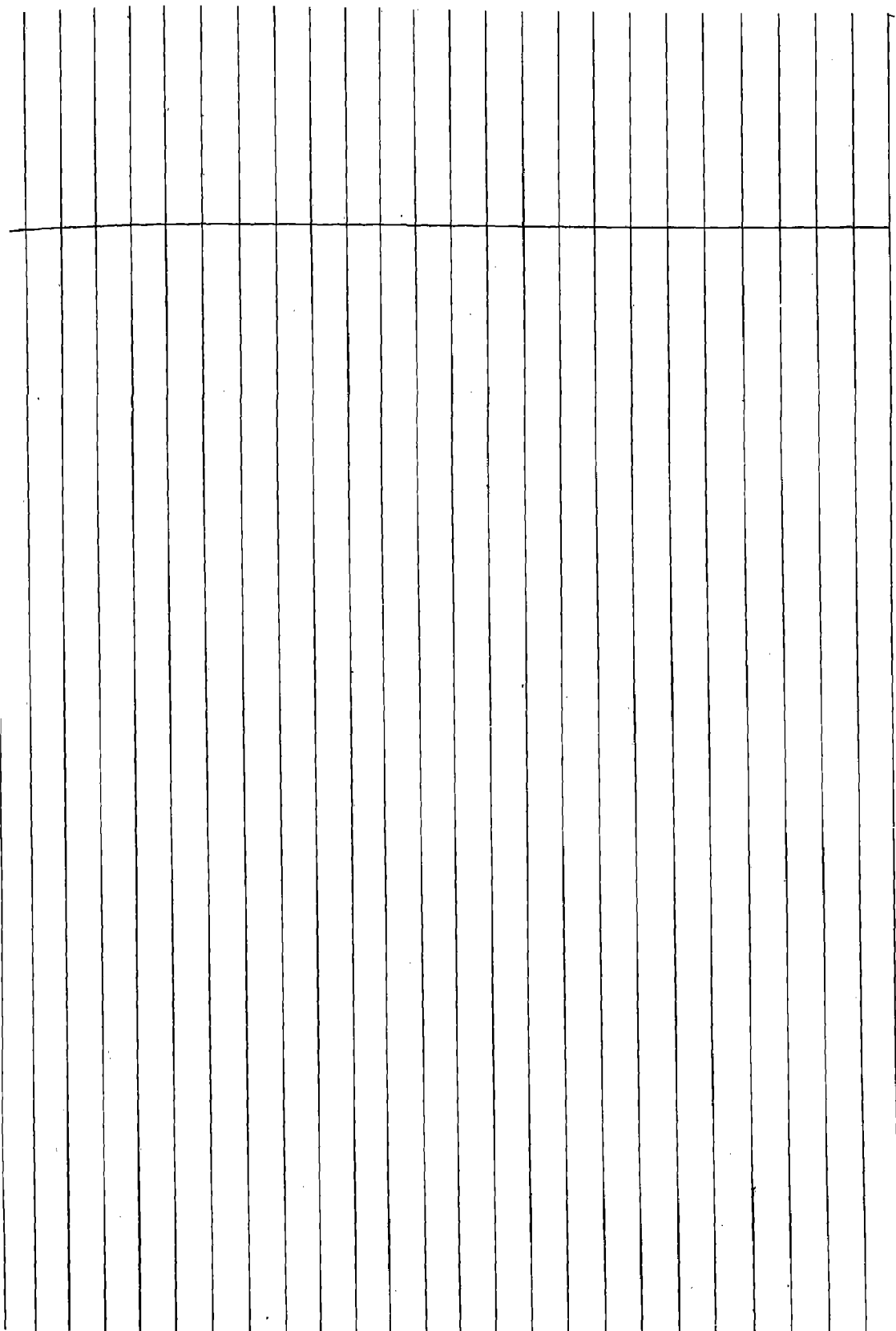
Description	Number, Amount	Price Per Unit		Total Value		Student		Other Party	
		Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
Animals									
Use of Buildings & Equipment									
Grain									
Supplement									
Hay									
Pasture									
Breeding & Veterinary fees									
Other									
(B) TOTAL ESTIMATED EXPENSES									
(C) TOTAL ESTIMATED LABOUR AND MANAGEMENT INCOME (A minus B)									

Goals should be developed before the enterprise begins and should be based upon the budget. They should be stated clearly and simply and be challenging, attainable and measurable. Achievements should be entered as they are determined throughout the crop production cycle.

[illegible]

The approved practices to be carried out in the enterprise should result from instruction in agriculture. They should be listed in a logical sequence, beginning with preparation of the seedbed and continue through harvesting, storing and marketing. Enter the date on which each practice is completed in the appropriate column.

[illegible]



INVENTORIES OF LIVESTOCK ENTERPRISE

The beginning and additional inventories are used only for those items on hand or added to the project which are not consumable and are used in production. Include all items in the closing inventory which have not been sold or used before the time for closing the inventory.

BEGINNING AND ADDITIONAL INVENTORIES

Date	Description	Number, Amount	Price Per Unit		Total Value		Student Share	
			Rs.	P.	Rs.	P.	Rs.	P.
(A) Total Beginning and Additional Inventory								

CLOSING INVENTORY

Date	Description	Number, Amount	Price Per Unit		Total Value		Student Share	
			Rs.	P.	Rs.	P.	Rs.	P.
(B) Total Closing Inventory								
(C) Increase in Inventory (B minus A)								
(D) Decrease in Inventory (A minus B)								

FEED FOR LIVESTOCK

Charge all feed including pasture, minerals and the cost of mixing and grinding whether purchased, received free or grown on the farm. Deduct the cost of feed on hand at the close of the period from the cost of the amount set aside, in order to determine the cost of the amount actually used.

[illegible]

FEED FOR LIVESTOCK (Continued)[illegible]

OTHER COSTS

This record includes all expenses other than for feed. Use actual costs or charges representative to the area.

Date	Description	Quantity	Price Per Unit		Total Value		Student Share	
			Rs.	P.	Rs.	P.	Rs.	P.
	Housing							
	Equipment							
	Electricity							
	Fuel and oil							
	Hired labour							
	Power costs							
	Breeding fees							
	Veterinary fees and medicine							
	Transportation							
	Livestock supplies and bedding							
	Taxes and insurance							
	Interest							
	Other costs							
TOTAL								

LIVESTOCK PRODUCTS SOLD OR USED AT HOME

Credit at the current market price at the farm, all products used at home before the closing inventory is taken. Credit as sales all products sold or exchanged for others. Credit all bi-products whether sold or used on the farm. Record both number and weight of all animals and animal products.

[illegible]

SUMMARY OF LIVESTOCK ENTERPRISE

RETURNS

Description	Quantity	Total Value		Student Share		Other Party	
		Rs.	P.	Rs.	P.	Rs.	P.
Increase in Inventory (Page 5) Item C							
Livestock sold or used at home (Page 6)							
Livestock products sold or used at home (Page 6)							
Other							
(A) TOTAL ENTERPRISE RETURNS							

EXPENSES

Description	Quantity		Total Value		Student Share		Other Party	
	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
Decrease in Inventory (Page 5) Item D								
Feed Costs (Page 7)								
Total other costs (Page 9)								
Other								
(B) TOTAL ENTERPRISE EXPENSES								
(C) TOTAL LABOUR AND MANAGEMENT INCOME (A minus B)								

ANALYSIS OF LIVESTOCK ENTERPRISE

Date Project Started _____ Date Project Closed _____ Total Days _____
 Kind _____ Breed _____
 Number Started (Page 5) _____ Number Raised _____
 Mortality — Number _____ Percent _____
 Kind of Feeds Fed (Concentrates) _____
 (Roughages) _____
 Analysis of Main Concentrate % Protein _____ T.D.N. _____ Fiber _____

ANALYSIS OF LIVESTOCK ENTERPRISE (Continued)

	Total	Unit
1. Production of Main Product (Meat, Milk, Eggs, etc.)	_____	_____
2. Value of Production	_____	_____
3. Cost of Production	_____	_____
4. Feed Cost	_____	_____
5. Costs other than feed	_____	_____
6. Labour and Management Income	_____	_____
7. Amount of Feed fed	_____	_____
8. Feed Conversion (No. 7 ÷ by No. 1)	_____	x x x
9. _____	_____	_____
10. _____	_____	_____

Special Practices that seemed to be very beneficial :

WHAT CHANGES NEED TO BE MADE TO IMPROVE THIS PROJECT ?

(To be completed by student)

Teacher's Decision - The student will tabulate the data as instructed in the previous parts of the record and enter it on page 10, where he may assess the degree in which the approved practices selected and implemented have succeeded and the changes which need the made.

A FARM MECHANICS PROGRAMME FOR SECONDARY SCHOOLS IN INDIA

Committee No. 3:

R.S. Upadhyaya
R.S. Bansal
U.P. Singh Sisodia
J.P. Sharma
J.C. Malik
K.T. Ramachandra
R.P. Saini

Consultants:

M.G. Kelkar
E.E. Julson

This is the Purpose

Agriculture in India is changing fast. Today, a much greater use is being made of improved implements and tools in crop and livestock production. Therefore, a much greater emphasis needs to be made by the Secondary School in the teaching of farm mechanics and in the selection, operation and maintenance of improved implements and tools. The curriculum needs to be brought up-to-date to meet the needs of the present as well as the future farmer.

With these facts in mind, the committee expects to achieve the following objectives:

1. To emphasise the importance of an adequate farm mechanics programme in the secondary schools.
2. To suggest some minimum requirements for a small but effective school farm workshop for instructional purposes.
3. To suggest ways and means by which teachers may plan and organize facilities for a farm workshop in their schools.
4. To suggest some basic skills in farm mechanics that teachers should possess before they should attempt to include the area of farm mechanics in their agricultural curriculum.
5. To suggest techniques teachers might use in teaching farm mechanics.

This is the Situation

1. A great majority of secondary schools having an agricultural stream do not have an adequate programme of instruction in the area of farm mechanics.

2. Many teachers of agriculture do not possess the necessary skills needed to teach an effective course in farm mechanics.
3. In some States, the teacher of agriculture is not considered the appropriate person to teach farm mechanics in the school.
4. Many secondary schools do not have adequate facilities with which to teach an effective programme of farm mechanics.
5. The daily time schedule of classes does not permit double periods for agricultural students. Double periods are needed to provide sufficient time for farm shop work by students.
6. Many times, the secondary school agricultural curriculum as prescribed by state educational authorities does not include sufficient training in farm mechanics. The curriculum needs to be brought up-to-date.

This we can Do

1. The teacher should reorganize the agricultural curriculum in his school (within the basic framework of the one prescribed by the state educational authorities) to include farm mechanics training needed by the community farmers. This programme should be included in the annual programme of instruction.
2. The teacher should develop a plan for a school farm workshop that would be suitable for the present school building arrangement. A suggested farm workshop layout is appended. The agriculture teacher could develop another plan on the basis of what he hopes to have in the future.
3. The teacher should develop a list of tools and equipment required for the proposed school farm workshop. Submit these requirements in the departmental budget proposals. A suggested list of tools and equipment for a school farm workshop is appended.
4. The agriculture teacher could provide/organize work experiences/work projects such as:
 - i. Construction of a chicken-house.
 - ii. Preparation of poultry feeders.
 - iii. Preparation of feeding troughs for cattle.
 - iv. Repairing of farm implements and tools.
 - v. Assembling and dismantling of implements.
 - vi. Operation of diesel/electrically operated water lift-pump.

These work experiences would:

- a. Acquaint students with appropriate tools in areas such as cold metal, forging, carpentry, etc.
 - b. Provide opportunities to select and use these tools.
 - c. Develop a favourable attitude towards self-reliance in matters of repairs and maintenance of implements and tools used on the students' farms.
 - d. Provide opportunities to prepare a bill of materials for small items like feeders, feeding troughs, khurpis.
5. The agriculture teacher should evaluate his skills and abilities in the farm mechanics area. He should attempt to improve those skills in which he is lacking.
 6. The agriculture teacher should prepare and use effective demonstrations and other effective methods in teaching farm mechanics. He should make use of demonstration and job-operation lesson plans in his teaching.

The participants worked on the group project of chicken house construction. They prepared a bill of materials required for the chicken house. The details are as follows:

Bill of Materials For Chicken House

Sl. No.	Particulars	No. of pieces	Length	Width	Thickness	Total cubic inches of wood
1.	Front posts (verticle)	2	107"	3"	2 1/2"	1605
2.	Back posts (Verticle)	2	81"	3"	2 1/2"	1215
3.	Front & back battons	2	116"	2"	2 1/2"	1160
4.	Side Battons	2	62"	2"	2 1/2"	620
5.	Front and back rails	2	116"	1 1/2"	2 1/2"	870
6.	Side rails	2	62"	1 1/2"	2 1/2"	465
7.	Front and back top rails (rafter supporters)	2	116"	2"	2 1/2"	1160
8.	Rafters	2	84"	2"	2 1/2"	840
9.	Side battons	2	48"	1 1/2"	2 1/2"	360
10.	Front battons	2	42"	1 1/2"	2 1/2"	315
11.	Back battons	2	36"	1 1/2"	2 1/2"	270
12.	Doors on the back side (3 in all)	6	10"	1 1/2"	1 1/2"	135
13.	- do -	6	35"	1 1/2"	1 1/2"	472.50
14.	Bottom batton (Floor)	1	62"	2"	2 1/2"	310
15.	Wooden strip to fix wire-screen all round	-	100 ft.	1/4"	1 1/2"	450
16.	Additional supports are given to provide strength to the chicken house:					
	a. front supports	2	40"	2"	2 1/2"	400.00
	b. back supports	2	32"	2"	2 1/2"	320
	c. side supports	2	36"	2"	2 1/2"	360
TOTAL:						11327.50 cubic inches
6.55 cubic feet of wood.						

Estimated Expenditure on the construction of a chicken-house
that will house 35-40 birds.

Sl. No.	Particulars	Quantity	Rate Approx.	Total Cost
1.	Wood	6.6 c.ft. approx.	Rs. 13.62 per c.ft.	Rs. 90.00
2.	Wire-screen, strong.	17' running	Rs. 1.75 per ft.	Rs. 29.75
	Wire-screen, medium.	33' "	Rs. 0.75 per ft. (running)	Rs. 24.75
3.	Hardware screws, hinges, nails, handles, angles, etc.	-	-	Rs. 14.75
4.	Roof-grass (Phoos)	2 mds.	Rs. 5.50 per md.	Rs. 11.00
	Rope	1.5 kgs.	Rs. 1.00 per kg.	Rs. 1.50
	Bamboos	5	Rs. 0.50 per bam.	Rs. 2.50
	Iron wire	1/2 kg.	Rs. 3.00 per kg.	Rs. 1.50
5.	<u>Electrical Connections:</u>			
	a. Electrical wire (Plastic)	10 yards	Rs. 0.25 per yd.	Rs. 2.50
	b. Holder	1	Rs. 0.75	Rs. 0.75
	c. Switch	1	Rs. 0.75	Rs. 0.75
	d. Plug	1	Rs. 1.00	Rs. 1.00
6.	<u>Miscellaneous</u>			
	Coal-tar, locks, transport etc.	-	-	Rs. 10.00
7.	Feeders and waterers 3 of each	-	-	Rs. 25.00
8.	Labour	-	-	Rs. 30.00
TOTAL:				Rs. 245.75

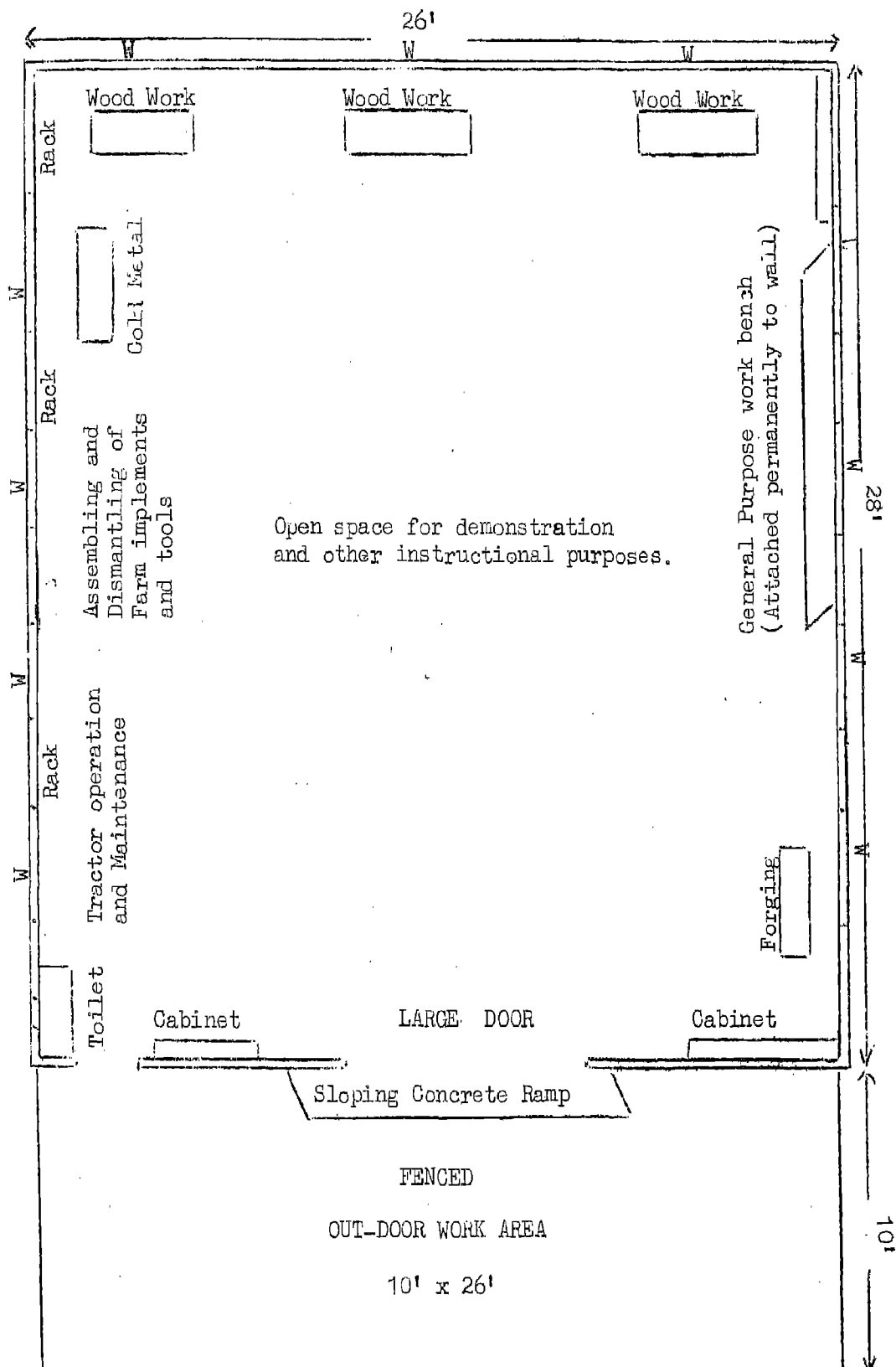
Farm Workshop Tools for the School
Department of Agriculture
(For 25 Students)

Sl. No.	Areawise Items	Particulars	Quantity Required	Rate Per Unit
(1)	(2)	(3)	(4)	(5)
A. Wood-Working Tools				
	(Hand)			
a.	Plane	Jack-14" good quality blade	4	Rs.30/-to35/-
		Smoothing-10" good " "	4	Rs.25/-
		Rabbit wooden " " "	2	Rs. 5/-
		Block - 6" " " "	2	Rs.10/-
		Grooving-(with one set of cutters) (wooden)	1	Rs.20/-
b.	Chisel-(with good quality handle)	Firmer - 1"; 3/4"; 1/2"	1 set	Rs.12/- for set of 3
		Mortise - 3/4"; 1/2"; 1/4"	1 set	Rs.12/- for set of 3
		Dovetail- 1"; 3/4"; 1/2"	1 set	Rs.12/- for set of 3
c.	Try square	6"; 12"	2	Rs. 3/- & 6/- each
	Bevel square		2	Rs. 3/- & 6/- each
d.	Gauge	Firmer - 1";3/4";1/2"	1 set	Rs.12/- for set of 3
e.	Marking gauge		6	Rs. 2/-
f.	Mortise gauge		1	Rs. 2/50
g.	Scales	a. Two ft.wooden (folding)	2	Rs. 2/-
		b. Flexible closet (steel)	2	Rs. 5/25
		c. Steel scale-12"	2	Rs. 1.50
h.	Gimlets bits	1"; 3/4"; 1/2"	3	Rs. 2.50 per bit
i.	Screw Drivers	12"; 15"; 6" good quality (steel) wooden handle	3	Rs. 3.00 per Screw driver
j.	Saw set	a. Cross-cut	3	Rs. 5/-
		b. Coping	2	Rs.11/-
		c. Key-hole	1	Rs. 7/-
		d. Rip-saw	2	Rs.10/-
		e. Back-saw	1	Rs. 6/50
k.	Basula (indigenous Hatchet)	Locally made. Good quality	6	Rs. 5/-

(1)	(2)	(3)	(4)	(5)
1.	Hammers, Hatchets, Bars, etc.	a. Curved claw hammer	6	Rs. 4/50
		b. Ripping, straight claw hammer	6	Rs. 4/50
		c. Ball-peen hammer	2	Rs. 2/50
		d. Half hatchet; Broad hatchet	2	Rs. 5/-
		e. Nail sets (Punches)	1 set	Rs. 11/- for set of
		f. Goose-neck wrecking bar (nail puller)	2	Rs. 5/-
	m. Scrapers	a. Cabinet	1	Rs. 60/-
		b. Spoke-shave	1	Rs. 6/-
	n.			
	n. Stones	a. Oil-stone	4	Rs. 8/- to 10/-
		b. Water-stone	6	Rs. 2.50
	o. Wood Boring Tools	a. Bit-brace steel (with set of bits)	8	Rs. 28/-
		b. Hand-drill (wooden, indigenous)	3	Rs. 4/50
	p. Clamps	a. Adjustable bar clamp, 5 ft. long	1	Rs. 5/- per running ft.
		b. Wooden Parallel clamp	1	Rs. 10/-
		c. 'C' clamps 6"; 4"	1 each	Rs. 2/-
	q. Vise	Wooden - 12" Jaws - 4" x 10" (Steel)	6	Rs. 25/-
	r. Mallet Hard (wooden)	Head 2 1/4" x 13" (long)	6	Locally made
	s. Wood-Rasp	10"; 12" (Med.)	1 each	Rs. 6.50
B.	<u>Cold-metal</u>			
	a. Hammers	a. Ball-peen	4	Rs. 2/50
		b. Straight-peen	4	Rs. 3/00
		c. Cross-peen	4	Rs. 3.00
	b. Cutting metal	a. Hack-Saws (good quality with quantity of spare blades)	4	Rs. 15/-
	Chisels	b. Cold chisels		
		i. Cape chisel	6	Rs. 2/50
		ii. Round nose chisel	3	Rs. 2/50
		iii. Diamond point chisel	6	Rs. 3/50

(1)	(2)	(3)	(4)	(5)
	Files	c. Files - good quality		
		i. Flat double-cut	2	Rs. 5/-
		ii. Half round	2	Rs. 5/-
		iii. Round	2	Rs. 6/-
		vi. Triangular saw (tapered)	2	Rs. 6/-
	c. Drilling with drilling bits	a. Electric drill (portable) wolf type	1	Rs. 450/-
		b. Hand Breast drill	1	Rs. 35/-
		c. Drill-press vise 4"	2	Rs. 20/-
		d. Punches - drift or hand 1/8"; 1/16"; 1/4" (5" to 8" long)	1 each	Rs. 15/- each
	d. Snippers, Tin	Bent snippers - 8"	1	Rs. 6/-
		Straight - 12"	1	Rs. 5/-
	e. Bolt-cutter	Good quality	1	- -
	f. Wrenches	a. Universal wrench (Monkey) 18"	1	Rs. 30/-
		b. Adjustable screw wrench, 12"	1	Rs. 15/-
	g. Pliers	a. Pliers - cutting type	3	Rs. 7/-
		b. Gas type	2	Rs. 7/-
C.	<u>Hot Metal</u>			
	a. Forge	Forge-Indigenous with Hand-blower	1	Rs. 250/-
	b. Anvil	a. Black-smith's; steel, specially hardened top 50 kgs. wt.	1	Rs. 70/-
		b. Swage block - 12"x12"x4" 1 or 25 kgs.	1	Rs. 45/-
	c. Hammers	a. Sledge - 10 lbs.	2	Rs. 10/-
		b. Set Hammers	2	Rs. 4/-
		c. Black-smith's Hammers	2	Rs. 4/-
	d. Punches	a. Round	1	Rs. 15/- per set
		b. Square	1	
		c. Cutters	1	
		d. Fuller, hardy and Square Top and bottom	1	Rs. 10/-

(1)	(2)	(3)	(4)	(5)
e. Tongs	a. Flat or straight lip	2		Rs.2/50
	b. Bolt tongs	2		Rs.2/50
	c. Rivet tongs	2		Rs.2/50
	d. Angled tong	2		Rs.2/50
f. Vises	Black smithy, metal	1		Rs.70/-
	working, with leg replaceable			
	jaws. Heavy duty			
g. Awl	Marking steel good quality	3		Rs.2/-



List of Firms Dealing in Farm-Workshop Machinery and Tools:

1. Muchar Allied Traders, 10185, Arya Samaj Road, Karol Bagh, N. Delhi-5.
2. Perfect Machine Tools, Sir Feroze Shah Mehta Road, Bombay-1.
3. Hindustan Tools of Hardware Mart, 126, Lohar Chawk, Bombay-2.
4. Shah Bastimal Chhogalal Bohra, Sadar Market, Jodhpur.
5. M/S Rajkamal Traders, Kapra Bazar, Jodhpur.
6. M/S Premier Engineering Stores, Chaupasi Road, Jodhpur.
7. M/S Engineering Industrial Appliances, Govindji Lal ji Building, Dhanji Quarry Road, Malad (East) Bombay-64.
8. Batliboy and Co., Forbes Street, P.O. Box No. 190, Bombay-1.
9. Turakhia Traders, Hathipala Road, Siya Ganj, Indore City.
10. Champion Traders, P.B. 1764, Bombay-1.
11. M/S Ashok Bros., 37, Pachkuian Road, P.B. No. 305, New Delhi-1.
12. M/S Industrial Machinery & Tools Corp., P-14, Mission Road, Extension, Calcutta-1.
13. M/S Light House, Bhagwan Das Building - High Court Road, Jodhpur.
14. M/S V. Ramesh & Co., Mas'kati Mahal, 115, Lohari Chawl, Bombay-2.
15. M/S Associated Tools Corp., 47-49 Nag-Devi Cross Lane, Bombay-3.
16. Central Stores Supplying Co., Industrial House, 2nd Floor, 51-53, Nag Devi Cross Lane, Bombay-3.
17. Ajanta Trading Corp., Begsha Bhawan, Kalyan Street, Chandpole Bazar, Jaipur.
18. Diana Engineering Co. Pvt. Ltd., 42, Netaji Subhash Road, Calcutta-1.
19. Rasiklal Shah & Co., 93, Narayan Dhuru Street, Bombay-3.

NOTE: THE LISTS OF FIRMS DEALING IN DIFFERENT ITEMS GIVEN IN THIS BOOKLET ARE NOT COMPLETE. ALSO, THE FACT THAT A FIRM'S NAME IS INCLUDED DOES NOT IN ANY WAY CONSTITUTE A RECOMMENDATION ABOUT THE RELIABILITY OF THE FIRM OR THE QUALITY OF ITS PRODUCTS.

IMPROVED METHODS OF TEACHING AGRICULTURE IN THE SECONDARY SCHOOL

Committee No. 4 :

K.T. Ramachandra
G.S. Bansal
J.P. Sharma
Bhu Dayal
Bankat Raman Singh

Consultants:

Lowell E. Hedges
S.S. Srivastava
R.P. Singh
M.G. Kelkar

This is the Purpose

Educators and parents are concerned with the large number of students who drop out of school before completing their secondary school education. One reason for the large number of drop-outs may be that the schools are not always meeting the needs of the students. Research has found that the quality of teaching done in the schools has some effect on whether or not a student remains in the school.

In evaluating the agricultural education programme in secondary schools, educators have found that many times they do not meet the needs of the students enrolled in that course. The programme is found to be too narrow in concept, with too much emphasis on pure facts, overcrowded with insignificant details, insufficiently adapted to individual student differences, dominated by examinations and out-of-time with student's real life situations. Too many times the instruction is so theoretical and divorced from the practical application that it does not serve any useful purpose.

Educators recognize that there are many agricultural education programmes in secondary schools that can be improved by the teacher adopting a few new teaching methods. The purpose of this committee's report is to suggest some new teaching techniques that teachers of agriculture can adopt that would improve their teaching.

Specifically, this committee has as its objectives:

1. To present some problems teachers have in effectively teaching their classes.
2. To suggest specific ways by which a teacher can prepare practical and interesting lesson plans.
3. To suggest specific teaching aids that most teachers can conveniently use.
4. To suggest ways and means by which tests and testing can be made more useful to the students and to the teacher.

This is the Situation

1. A majority of the students who have taken agriculture as an optional subject are not showing a desirable interest in the subject of agriculture.
2. The students who have taken agriculture have developed an attitude of learning agriculture just to pass an examination, but not to apply the subject matter to actual life situations.
3. A large number of students who have taken agriculture feel that they are not competent to effectively operate and manage a farm.
4. The agriculture teacher has to teach only those agricultural subjects that are prescribed by the syllabus irrespective of whether or not they meet the needs of the students.
5. Many teachers do not help students to see the need to learn what is being taught.
6. A large number of teachers do not have sufficient teaching aids to use.
7. Many agriculture teachers are not trained effectively to use different types of teaching aids.
8. There is a lack of literature to guide the agriculture teacher in planning his lessons so that he can get and maintain the interest of his students.

9. Many teachers give only essay type tests which consume too much of teacher's and student's time.
10. Many students resent too much subjective evaluation by the teachers.
11. With the present type of examination system, teachers find it difficult to test students in all areas of the syllabus.
12. Many teachers do not have the ability to construct and administer objective type tests.
13. Many teachers do not use simple, inexpensive teaching aids.

<p>This we can Do</p>

1. The agriculture teacher should determine the different farm problems of the community and teach students how to solve them. This not only keeps the interest of students but also helps them to stay on the farm.
2. The agriculture teacher should organize the syllabus into problem areas. This procedure will help the students to understand how classroom information can be used to solve real life problems.
3. The agriculture teacher should try to make efficient use of simple teaching aids like chalk board, self-made charts, flannel graphs, posters, flip charts and models.
4. The agriculture teacher should have sufficient books relating to agriculture in his school library.
5. The agriculture teacher should use the post to contact different agencies like Directorate of Extension, I.C.A.R., Information Centres of C.D., Director of Agriculture, and others and request simple booklets, folders and charts. They are given either free of charge or at a low price.
6. The agriculture teacher should construct and administer objective type tests. It helps not only to cover all areas of syllabus but also consumes less time to score and review with students. Objective-type tests help develop the attitude in students that evaluation is really a "learning process".

7. The teacher of agriculture should use the "problem-solving" type of lesson plan whenever possible.
8. Suggested techniques in planning lessons using the "problem-solving" approach are appended.
9. Suggestions on "How to Build a Written Class-room Test" are appended.
10. Some simple teaching aids and teaching techniques teachers can use to make their teaching more interesting and practical are included in a publication prepared by the Department of Agricultural Education. A copy of the publication can be obtained by writing to the Regional College of Education, Ajmer.

* * * * *

The Problem Solving Approach To Teaching

1. What is problem solving?
 - a. Scientific approach to learning.
 - b. Guides students to realize that there is a sequence to Thinking and Doing.
 - c. A common experience in every day life.
 - d. Fits learning of facts in proper role: as a tool and not as an end in itself.
 - e. ?
2. Where can problem solving be developed in agriculture?
 - a. Crop and livestock production, etc.
 - b. Money management.
 - c. Farm management.
 - d. ?
3. What are the principle steps in problem solving?
 - a. Difficulty met by student of which solution is not known. Student aroused to action.

- b. Student states problem (or problem identified by class with assistance of teacher).
 - c. Students in class suggest possible ways of solving problem.
 - d. Suggestions discussed and unreasonable suggestions discarded.
 - e. Reasonable suggestion or suggestions tried out.
 - f. Solution or answer is determined through application.
 - g. Problem and solution are restated if necessary and another solution formulated.
 - h. Generalizations are made.
 - i. ?
4. Characteristics of a good problem in agriculture.
- a. Appeals to students as real and worthy of solution.
 - b. Possible to solve. Requires thinking in its solution and not merely the finding of facts in a book.
 - c. Relates to what is familiar to student.
 - d. Challenging and stated strikingly enough to gain attention.
 - e. Phrased in language suitable to grade level.
 - f. Should provoke discussion.
 - g. Should be related to unit.
 - h. Should not be too inclusive.
 - i. ?
5. Types of problems.
- a. Forked-Road Situation.
 - b. Possibilities-Factors.
 - c. Situation-To-Be-Improved.
 - d. Effect and Cause.
 - e. ?

A PROCEDURE FOR PREPARING TO TEACH A PROBLEM TO A SECONDARY SCHOOL CLASS

Department of Agricultural Education
Regional College of Education, Ajmer.

1. Become familiar with the status or need of the enterprise in the community. (How important economically is the enterprise? Is it the main source of income for the farmers?)
2. Review the home project record books, particularly those of the enterprise you are planning to teach.
3. Visit students and/or farmers who have this enterprise to observe and learn conditions and attitudes. Identify where the students are and then, where they should be.
4. Set down specific objectives in terms of what the students need to know and do. This necessitates determining where the students are in their knowledge and experience.
5. Prepare an introduction which arouses curiosity, creates doubt, develops a feeling of need, motivates thinking, brings about a division of the group, and prevails with practicality. An effective introduction will bring out the problem clearly.
6. Decide on the type of problem-solving to follow: (Possibilities-Factors, Situation-To-Improved, Cause and Effect, Forked Road).
7. Decide on an organization and presentation of content which is logical and practical for students. (Helps the taking of good notes for students, helps teacher do effective chalk board work, etc.).
8. Develop your teaching plan at least 3 days prior to day of teaching, including such things as:
 - a. Specific Objectives.
 - b. Some key questions.
 - c. Facts that are current or up-to-date.
 - d. Teaching aids.
 - e. References along with page or pages.
 - f. Specific decision to the problem.

- g. Apply the facts to other individual student situations in the class.
- h. Emphasize the basic principles or understandings of the lesson.
- i. Follow-up teaching with each individual as applied to the farm or some other agricultural situation.

* * * * *

SOME PROCEDURES IN THE PROBLEM SOLVING METHOD

A. Three main features of a lesson plan for problem-solving are:

- 1. Objectives: (What is to happen to the student?)
- 2. Content: (Subject matter of the lesson: facts, main principles, concepts, illustrations, etc., which are discussed in class.)
- 3. Procedures: (Plan for class activities and for those of the teacher).

B. Let us take these three main features and break them down into more workable parts:

- 1. Lesson objective(s).
- 2. Problem.
- 3. Possible Solutions and Factors to be considered.
- 4. Facts to be Considered in Reaching A Decision.
- 5. Decision or Conclusion.
- 6. Testing Procedure and Follow-up.

C. Perhaps you would find it easier to plan a "Problem-Solving" type of lesson if we broke our outline (section B) down into a more detailed plan:

- 1. Objectives.
- 2. Introducing The Lesson Including The Boy's Problem Situation.
- 3. Stating the Problem.

4. Factors To Consider In Reaching A Decision.
5. Supervised Study, References, Teaching Aids.
6. Evaluating The Facts.
7. Arriving At a Decision To The Problem.
8. Applying The Facts To Other Individual Situations In The Class.
9. Making Some General Conclusions. Emphasize The Principles or Understandings.
10. Evaluate.
11. Follow-up.

* * * * *

AN EXPLANATION OF AREAS OF LESSON PLAN FOR PROBLEM-SOLVING METHOD

1. Objectives:
 - a. Identify changes in practices that should be made.
 - b. Basic question to answer: "What is to happen to the student?"
2. Introducing The Lesson, Including The Boy's Problem Situation:
 - a. This area sets the stage for problem solving.
 - b. Arouses curiosity for the lesson.
 - c. Creates a feeling of need on the part of the students. Gets the students interested so that they want to solve the problem.
 - d. Questions to be answered:
 1. What is the specific situation?
 2. What needs to be done?
 3. Why?
 4. What is the previous knowledge of students?

3. Stating The Problem:

- a. Specific problem should be written on chalkboard. ~~This will insure that class will be reminded visually of the direction their thinking should take.~~
- b. Sometimes the problem may also imply the possibilities for solution: "Which Breed of Poultry Should I Select For My Home Project?"

4. Factors to Consider in Reaching A decision:

- a. These are "things" students need to know to reach a decision. Many times these are in the form of a question: "Is the variety resistant to lodging?"
- b. At this point, the class may identify possible solutions to the problem.

5. Supervised Study, References, Teaching Aids:

- a. Through reading references, and exchange of experiences, students secure the facts. Direct students' reading through references to find additional factors plus facts relevant and appropriate to each factor. Also use personal experiences of students as source of facts.
- b. List references in lesson plan for easy referral. Page numbers should also be included.
- c. List teaching aids and teaching techniques to be used to bring out the appropriate facts, to help students understand these facts, and how these facts are to be used in solving the problem.

6. Evaluate The Facts:

- a. Recognize the relative importance of each fact in the specific situation under consideration. How accurate are the facts? Are they applicable to the problem?
- b. Use appropriate questions to help students in their thinking.

7. Arrive At a Decision To The Problem:

- a. Recall and evaluate facts gained from reading references and from exchange of experiences.
- b. Apply these facts to the problem. After giving consideration to the evaluation of the facts, make the decision.

8. Apply The Facts To Other Individual Situations In The Class:

- a. Each student should analyze his own situation to see how the facts can be used to solve his problem (s).
- b. Teacher may need to work individually with students.

9. Make Some General Conclusions. Emphasize The Principles or Understandings. (May Not be essential for some problems).

- a. A generalization is a statement of a basic principle (fundamental truth) which has broad application.
- b. Guide the students to summarize and combine facts into broader statements which give some direction for behavior.
- c. Conclusions can be worded as "approved practices."

10. Evaluation:

- a. Students should be tested to determine degree of understanding of lesson. Their ability to apply generalizations and principles to new situations should be tested.
- b. Essay-type and objective-type tests may be used as well as oral and performance tests.
- c. Students' progress should be evaluated following each lesson.

11. Follow-up:

- a. Teacher should visit home farm of student to check on progress in using approved practices arrived at in class.
- b. Follow-up is necessary to check on the change in student "behavior".
- c. Assignments for the next day's class or for further study at home, etc., may be given.

HOW TO BUILD A WRITTEN CLASSROOM TEST

By Lowell E. Hedges
Department of Agricultural Education
R.C.E., Ajmer

As a teacher you have probably found that it is not easy to make a good test, for good tests are made after much thought and effort. However, if you understand and follow a few basic rules, then building a good classroom test will not seem like an unsurmountable task.

In general, there are three common ways of testing: (1) practical or performance test, (2) oral or verbal test, and (3) written test. In this discussion, we will concern ourselves with the written test.

When building your next test, try applying these basic rules:

1. Have a specific objective for the test. Some objectives for a test may be: (a) to determine strengths and weaknesses of your students, (b) to determine how well you have taught and to help you do a better job of teaching, (c) to determine the effectiveness of teaching methods and visual aids, demonstrations, field trips and other instructional methods, (d) to help your students learn the basic fundamentals of the lessons, and (e) to help determine the students' grades.
2. Make a careful plan for the test questions. This plan should be written so as to enable you to recognize its strengths and weaknesses. For example, by the use of the test you want to get a general picture of class achievement with some indication of over-all areas of strength and weakness in agricultural mathematics. You decide that you can classify the year's work into two areas: the kind of computation required (addition, subtraction, multiplication) and the way the problem was presented (word statements, thought questions). The questions you prepare would be testing the students in these two areas.
3. Prepare at least ten questions - preferably more. If your test is to diagnose student strengths and weaknesses, enough questions should be asked to sufficiently cover the subject matter.
4. Test on what was taught in class. But at the same time, ask the student to use his knowledge in new situations. Questions should go beyond what was merely to be remembered.

5. Test on critical points of learning. Test items should reveal a pupil's ability to apply known principles, to interpret, to draw conclusions from given data, and to solve problems. Do not emphasize inconsequential details. If you do, then students will also emphasize details and will neglect principles and generalizations.

WHICH TYPE OF QUESTION TO USE?

There are two main types of written questions used to build a good written test: the essay-type question and the objective-type question.

There are no specific rules to tell you which type of question to use. However, it will be easier to decide which type to use if the characteristics of each are kept clearly in mind.

The position of the test in the lesson plan will also have an influence on the type of question used. Certain types lend themselves best to quizzes, while others are better suited to reviews, unit tests, weekly tests, or final examinations.

A quiz can be easily and quickly administered by using objective-type questions such as true-false, multiple-choice or completion type. These types can be easily graded by an interchange of students' papers and marked in class. The teacher may or may not wish to record the grades. Short answer essay-type questions may also be used, but should be graded by the teacher.

An examination should use a variety of types of questions. A balance can be achieved by using the essay-type and a combination of objective-type questions. Variety adds interest and also gives students of varying levels of ability and capacity a chance to achieve partial success in the examination.

The remainder of this discussion is concerned with a more detailed analysis of the two main types of questions. The teacher should familiarize himself with the purpose and structure of each type of question.

HOW TO WRITE ESSAY-TYPE QUESTIONS.

The essay-type item requires the student to give a relatively free written response to a question - usually a problem situation. The answer is usually one or more sentences in length. However, some essay questions may even require several pages for a complete answer.

The essay-test is best adapted to measuring higher-level intellectual skills such as reasoning required in inference, organization of ideas, comparison and contrast. The student's ability to organize and express his ideas effectively can be judged by the use of the essay-type test. The pupil is forced to consider available facts, select those which are applicable, and express his conclusions or response in his own words.

A good essay-type test, in order to be reliable (stability of test scores) and valid (measures what it claims to measure), should be one which can be evaluated without bias, prejudice, or otherwise influenced by personal impressions. As a teacher, you must avoid being impressed with (1) the legibility of the handwriting, (2) the quantity of writing, (3) the style of writing rather than the content (beware of the student who says nothing, but who says it well with smooth flowing prose), (4) the inter-personal relationship that you have with the student (Is the student a "good" boy or a "bad" boy?), (5) the previous work of the pupil in class during the year, and (6) the relative value of a paper when you compare it with others. Example: an average paper looks good when preceded by a series of poor papers; an average paper looks poor when preceded by excellent papers.

The above precautions emphasize some of the common criticisms aimed at the essay-type question. Another criticism is that the test-taker cannot clearly comprehend the meaning of the question. Such questions do not clearly indicate the response that you expect from the student.

Consider the following questions. Are the responses desired by you, the teacher, clear to the test-taker?

1. Tell what you know about feeding the poultry flock.
2. Tell what happens when milk is run through a cream separator.

The test-taker could write on the above questions for a considerable length of time and perhaps not give the response desired by the teacher. The student has wasted his time by guessing what you really want as a response. And you would waste your own time by reading the lengthy responses.

Let us re-write the above questions, limiting the scope of the answer to specific parts of the main topic.

1. Recommend a balanced ration for laying hens.
2. Describe the principle by which cream is separated from the milk in the cream separator.

Do's and Don'ts In Writing Essay-type Test Questions

1. Begin the question with "why," "how," "with what consequences," or "with what significance." These words restrict the answer - specify more clearly the intent of the question. Avoid beginning the question with words such as, "discuss," "explain," or "outline." These invite too lengthy and many times irrelevant answers.
2. Do not permit the student a choice among several questions. It is difficult to arrive at comparable scores for students who answer different questions. Also, the student may use incorrect judgment in choosing the questions he feels he can best answer.
3. Before grading the test, list the basic facts which each question is to bring out. Assign specific credit points to each key fact. The weight given to each fact or item should be in proportion to its importance. This technique makes scoring more reliable - more objective, less subjective.
4. When grading the test, read all papers for one question at a time rather than all papers straight through. This way, comparisons of answers will be sharper.
5. Score separately from subject-matter content any credit given for penmanship, spelling, and grammatical expression.

HOW TO WRITE OBJECTIVE-TYPE QUESTIONS

Objective questions, generally speaking, are classified into five major types: (1) multiple-choice, (2) matching, (3) completion or fill-in, (4) true-false, and (5) interpretation of data. There are, of course, numerous variations among these types.

Objectives questions - sometimes called "short answer" questions - properly constructed will help dispel the criticism that objective tests require little thought, insight, or understanding.

On the contrary, objective-type questions or tests have the following advantages over the essay-type test: (1) Better coverage of total course content. Students can answer many more questions in same amount of time. (2) Objectivity of scoring is relatively high. There is less chance for the teacher to use personal opinion in grading the test. Questions usually have only one acceptable response. (3) Much time is saved by the teacher in grading the test. Objective questions are easily and quickly graded. (4) Identification of student weaknesses is an easier job and results in a more dependable measure of what a student knows. Students are forced to answer a question directly, and have little opportunity to dodge the intent of the question.

A study and application of the following principles in constructing objective-type questions will aid you in proving the value of objective tests.

THE MULTIPLE CHOICE TYPE OF TEST

A multiple-choice test item consists of a direct question or incomplete statement followed by a series of possible responses or options. The question or incomplete statement is called the "stem." It is relatively long and the responses or options relatively short. There are usually four or five responses or options, only one being the best response. The others are to distract the student lacking in understanding.

The multiple-choice type of test can be used at most class levels and for most subject areas. Multiple-choice test items can be constructed to measure comprehension, information, ability to measure interpretation of data, and understanding of principles.

Do's and Don'ts In Writing Multiple-choice Test Questions

1. Use at least four responses. Three choices are too few and five too difficult to devise.
2. All answer choices should appear plausible to the test-taker not knowing the correct answer. Incorrect (distracting) responses should distract, not confuse. Incorrect answers should represent common errors in student thinking.
3. Vary the position of the correct response. Put the right response in the first, second, third and fourth positions equally often.
4. Avoid the use of "a" or "an" as final words in the question statement, or use any other words that will give a clue to the correct choice.
5. Make answer choices of relatively uniform length. Some test makers include largest number of words in the correct answer. Students soon detect this procedure.
6. The question statement or "stem" and each of the possible responses should make a complete sentence.
7. The responses should be concise and unambiguous.
8. When using an incomplete statement, let the blank which the correct choice will fill be at the end.

9. Have the student place the number or letter of the correct response on a blank to the left of the statement, or place an "X" through the corresponding number or letter.
10. Give instructions on answering the test items.
11. Give an example of how to answer the test questions.
12. Prepare a scoring key.

Example of a Multiple-choice Type Test

Electric Arc Welding - Class X Agriculture

October 15, 1966

Student's Name

Section I. Multiple Choice.

Instructions: Each of the following statements or questions is followed by four possible answers. Read the statements and answer each carefully. Select the best answer, even though there may be several answers that appear to be correct. One answer is the best because it is most complete in answering the question or completing the statement. Draw an "X" through the number to the left of the statement that corresponds to the answer selected.

Example:

- X 2 3 4 1. The approximate length of the arc when welding with a blue dot electrode is: 1 - 1/8 inch; 2 - 3/8 inch; 3 - 1/2 inch; 4 - 5/8 inch.

- 1 2 3 4 1. If the weld bead is narrow and high, the trouble is probably:

- 1 - too high an ampere setting.
- 2 - too low an ampere setting.
- 3 - too fast travel speed.
- 4 - too short an arc.

1 2 3 4 2. A bead has a large amount of spattering about it. The cause is probably:

- 1 - too low an ampere setting.
- 2 - too high an ampere setting.
- 3 - too slow forward speed.
- 4 - too short an arc .

THE TRUE-FALSE TYPE OF TEST

The true-false test presents a series of statements or questions on which the student is to express judgement by indicating if they are true or false. The true-false test is best adapted to the testing of a large amount of subject matter in a relatively short period of time.

In using the true-false test, there is a danger of overstressing rote memory of detached and unrelated bits of information at the expense of understanding basic principles.

Do's and Don'ts In Writing True-False Test Questions

1. Avoid use of items which are partly true and partly false.
2. Avoid use of double negatives.
3. Write your questions in language that is easy for your pupils to understand.
4. Avoid specific determiners, such as "always," "never," "all," "none," "every."
5. Include only one idea in the question or statement. Double statements are confusing.
6. Do not use trick or catch questions. Do not test on trivial bits of information.
7. Have about half of the questions true and half false.
8. Do not follow a set pattern or sequence of true and false statements.
9. Avoid having one statement give answer to another.

10. Frame your questions so that there can be only one interpretation.
11. Avoid long, complicated statements.
12. Avoid quoting directly from the textbook.
13. Prepare a scoring key.
14. Correct score for a true-false test equals the number answered correctly minus the number wrong ($S=R-W$). This method presumably takes care of guessing.

Example of True-False Type Test.

Basic Electricity - Class IX Agriculture

October 10, 1966

Student's Name

Section I. True and False.

Instructions. Answer the following statements true or false. Draw an "X" through the T if the statement is true; an "X" through the F if the statement is false.

Example: ~~T~~ F 1. A blown fuse means that you either have a short in the circuit or an overload.

T F 1. A large diameter conductor will carry more current than a small one at a given voltage.

T F 2. A large diameter wire has a larger identification number than a smaller wire.

THE COMPLETION OR FILL-IN TYPE OF TEST

In the completion type of test, sentences are presented from which certain words or phrases have been omitted. The student is directed to complete the meaning of each sentence by filling in the word or words that have been omitted.

The completion-type test requires the student to recall the correct information. There is little chance for the student to guess.

This test is somewhat time consuming in scoring because students usually provide a variety of answers which are only partially correct. Subjective judgement is therefore required by the teacher who must determine how much credit to give to the student responses.

Do's and Don'ts in Writing Completion or Fill-in Test Questions.

1. Do not take direct quotations from the text book. This encourages rote memorization on the part of the student. Rephrase the language of the text.
2. Phrase the statement so that the blank calls for a single specific response. Omit words rather than phrases. Scoring will then be more objective.
3. Make all blanks same length and long enough to permit legible answers. Varied lengths of lines offer clues as to correct answer.
4. Use language that students understand. Use correct grammar.
5. Avoid clues to answer. Do not make completions depend on grammatical form or "pat" or textbook expressions. "A," "an," or verb form gives away the answer.
6. For lower grade students, use direct questions rather than an incomplete declarative sentence.
7. In grading the test, be prepared to accept alternate answers if correct.
8. Do not use too many blanks, especially if the sentence is short. This makes it difficult for the test taker to get the meaning of the sentence.
9. Avoid having one statement give answer to another.
10. Prepare a scoring key. Score by giving a specific weight to each blank correctly filled.

Example of a Completion Test

Horticulture - Class X Agriculture

October 1, 1966

Student's Name

Section I. Completion.

Instructions. Each of the sentences below has one or more blank spaces, each blank indicating a word (or words) that has been omitted. Read each sentence carefully. You are to choose the one word or sets of words which, when inserted in the sentence, best fits in with the meaning of the sentence as a whole. Place your answer on the line to the left of the sentence.

Example: two feet 1. The hole for balled plants should be _____
wider than the ball.

-
- _____ 1. The best time to transplant bare root plants is in the _____
- _____ 2. Quick growing trees are usually _____ lived trees.
- _____ 3. Background trees make the house look _____ than it
really is.

THE MATCHING-TYPE TEST.

The matching-type test usually consists of two parallel columns or lists: one of names, terms, labels, etc.; the other of definitions, achievements, charts and diagrams, and books, dates or events, etc. The pupil is required to match or associate each item of one column with the item which corresponds to it in the other column.

Do's and Don'ts In Writing Matching-type Test Questions

1. Construct a test with more than five items but less than 10 or 15. Long lists require the test taker to spend too much time hunting through them.
2. Select items from one subject field only. More than one subject field in the test is confusing to the student and makes it difficult for the teacher to spot student weaknesses.

3. Arrange names in alphabetical order; dates and numbers in sequence. This will save the test-taker's time.
4. Have an excess number of items in the answer column. This lessens the chance of the test-taker matching an item by the process of elimination.
5. Keep the two lists entirely on the same page. This saves time and prevents flipping of pages.
6. Avoid giving away the answer with such clues as having some words singular and some plural. Also watch for revealing associations such as nationality, "slang" expressions, etc.
7. Prepare a scoring key. Score by giving a specific weight to each correctly matched item.

Example of a Matching Test

Feeds and Feeding - Class XI Agriculture

Student's Name

Section 1. Matching.

Instructions. From Column B choose the items which match or connect with items in Column A. Place the corresponding letter of your answer on the line to the left of the number.

(A)	(B)
Example: <u> b </u> 1. A carbohydrate feed.	a. Linseed meal
	b. Maize
	c. Limestone
	d. Berseem Hay
	e. B-12

-
1. A mineral supplement.
2. A vitamin.
3. Can be fed to provide calcium.

THE INTERPRETATION OF DATA TYPE OF TEST

In this test, data are presented for the student to consider. Data may be in the form of charts or graphs. Interpretations of the data are also given. The student is required to recognize when an interpretation goes beyond the data and when an interpretation is within the data. The student is asked to "key" the individual interpretations according to a code.

Do's and Don'ts In Writing Interpretation of Data Test Questions

1. Use data that are relevant to the subject area being tested.
2. Include only one point in each statement. Avoid statements that are partly true according to the data given.
3. Divide the interpretation statements fairly evenly among the various code divisions.
4. Use correct grammar in constructing the interpretation statements.
5. Do not follow a set pattern when listing the statements. Have an irregular sequence.
6. Prepare a scoring key.

Example of Interpretation of Data Test

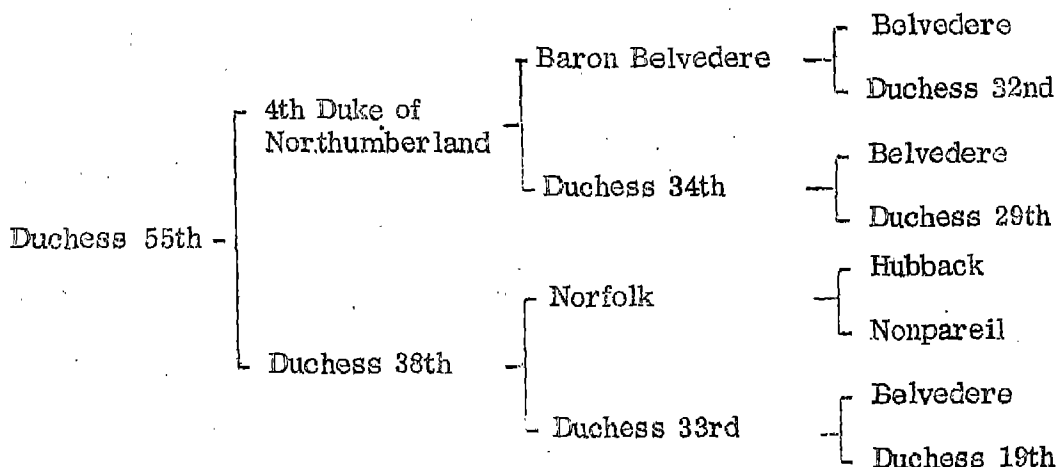
Dairy Cattle Breeding - Class XI Agriculture

October 1, 1966

Student's Name

Section 1. Interpretation of Data.

Instructions. Place an (A) in front of each statement that is true and can be proven by the data below. Place an (O) in front of each statement that may or may not be true, but cannot be answered sufficiently from the data below. Place an (I) in front of each statement that is incorrect according to the data below.



Example: A 1. Baron Belvedere and Duchess 34th are from the same sire.

1. Duchess 19th and Duchess 29th are half sisters.
2. Belvedere is the dam of several animals in this pedigree.
3. Duchess 33rd and Baron Belvedere both carry the same amount of Belvedere blood.

* * * * *

TIPS ON ADMINISTERING TESTS

1. If large percentage of student's course grade depends on the test, announce date of test ahead of time so students can study.
2. Duplicate the test. Don't write questions on chalkboard or read them aloud.
3. Produce clean, legible copy. Run off extra copies.
4. Fit the test to the time available. Announce time allotted for test. Give warning five minutes before test is over.
5. Administer the test in a comfortable, familiar setting.
6. Seat the students in such a way as to lessen the temptation to copy. Keep "honest men honest".
7. Make sure all students are ready for the test: sharpened pencils, filled ink pens, proper materials, and desks clear of books, notes and other unneeded articles.

8. Distribute test papers face down. This permits all students to start at the same time.
9. Explain each test section and the instructions.
10. Supervise the test. Move quietly about the room during the test to make sure all students are following the directions. Do not perform other teacher duties while test is in progress.
11. Do not use the test as a form of disciplinary action. Do all you can to ease student tension. An encouraging smile is always helpful.
12. Make certain all students stop work promptly when time is called. Collect test booklets or answer sheets immediately while students are seated. Then call for any other materials.
13. Grade and return test papers promptly. Review with the class.
14. Have class evaluate the test. Ask them for suggestions about the test. Take steps to prevent shortcomings when preparing next test.

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"POSSIBILITIES-FACTOR" TYPE OF LESSON PLAN

Committee No. 4 A:

G.S. Bansal
Bhu Dayal
N. Jayasheela
R.N. Adak
V.K. Garg

Unit: Crop production.

Sub-unit: Wheat cultivation.

Problem area: Selecting a suitable variety.

Class: XI

Suggested teaching time: 90 minutes

Objectives: To develop in the students the ability to select an appropriate variety of wheat for their home farms.

Problem situation:

- a. Home Projects situated in Ajmer are to be started by ten XI class students.
- b. Soil of their farms is sandy loam.
- c. Source of water are wells of low capacity.
- d. Size of each project is about one acre.
- e. Yellow rust and smut diseases are very prominent in the area.
- f. Market demand is for amber coloured wheat.
- g. The parents are receptive to the idea of sowing a high yielding variety.
- h. Rajasthan State Department of Agriculture has recommended the following wheat varieties:

R.S. 31-1, N.P. 718, Sonora 64, Lerma Rojo,
Pb. C 591, C. 281.

Introduction:

Our country needs about 100 million tons of food every year to feed her population. The production at present is about 80 million tons only. At present the grain requirement falls short by 20 million tons a year. We have to make up the deficit by importing food grains from foreign countries. In this way we lose a lot of foreign exchange every year. Generally, most of the farmers use local varieties. Some of them use improved varieties. Those persons using improved varieties harvest 3 to 4 times more grain than those using local varieties. In this community the following improved wheat varieties are recommended:

- a. Sonora-64
- b. Lerma Rojo
- c. R.S. 31-1
- d. N.P. 718
- e. Pb. C.591
- f. C. 281

If these varieties are adopted, the substantial amount of the country's deficit food production can be removed. Therefore, we have to select one of these improved varieties which is more suitable to the situation of the students' home projects.

Problem: Which variety of wheat should we select for our home projects?

Factors to be considered in reaching a decision:

1. Adaptability of the variety.
2. Availability of seed.
3. Soil requirement.
4. Water requirement.
5. Resistance to lodging.
6. Resistance to diseases and pests.
7. Fertilization requirement.
8. Tillering habit.

9. Maturity.
10. Duration of the crop.
11. Yielding capacity.
12. Colour of the grain.
13. Chapati making quality.

Supervised study, Reference materials, Teaching aids, etc.

Twenty-five minutes of supervised study. Distribute the reference material given below and ask students to collect the facts that relate to factors being considered in selecting the most appropriate wheat variety.

Reference:

"Grow Mexican Wheat," Pamphlet published by Directorate of Extension, Ministry of Food and Agriculture, New Delhi.

Teaching Aids:

1. Preserved ear heads of different varieties.
2. Seed of the different varieties.

(to be used after supervised study).

Reaching a decision on the problem:

1. Factor-Analysis chart (To be developed on chalk board with the assistance of students). Chart I will indicate the suitability of the various varieties of wheat for the problem situation.
2. Which variety is more suitable? Black board summary to be developed with the assistance of the students, using chart I.

CHART - I. FACTOR ANALYSIS CHART

Sl. No.	Factors	VARIETIES RECOMMENDED FOR RAJASTHAN					
		R.S.31-1	Sonora 64	Jerma Rojo	N.P. 718	Pb.c.591	C.281
1.	Soil Requirement	Sandy Loam	Heavy soil	Heavy soil	Sandy Loam	Sandy Loam	Sandy Loam
2.	Water Requirement	Low	Heavy	Heavy	Medium	Heavy	Medium
3.	Resistance to lodging	Semi-Lodging	Yes	Yes	Yes	Yes	Yes
4.	Manurial Requirement	Medium	High	High	Medium	High	Medium
5.	Resistance to diseases	Susceptible to rust *	Susceptible to yellow rust	Susceptible to yellow rust	Tolerant rust	Susceptible to rust	Susceptible to rust
6.	Maturity	Early	Late	Early	Early	Late	Early
7.	Yield per acre in pounds	2000-2400	5000	5000	2000-2500	2000-2500	1000-5000
8.	Market demand						
	i. Colour	Amber	Light Red	Red	White	Amber	Amber
	ii. Chapati quality	Hard, Lustrous	Strong gluten, i.e., hard	Soft	Hard, Lustrous	Excellent	Hard & Lustrous
9.	Recommendation for Ajmer	Yes	Yes	Yes	No	No	No

* Escapes from Black rust due to early maturity.

The above information shows that R.S.31-1 is more suitable than the others.

Decision: We should select R.S.31-1 because it is more suitable than the other varieties due to the following reasons:

- a. Water requirement is very low.
- b. Variety is early maturing.
- c. Variety is well adapted to the local sandy loam soil.
- d. Grain of the variety is amber coloured which is popular in the market.
- e. Agriculture Department of Rajasthan recommends this variety for Ajmer Area.

SELECTED EVALUATION QUESTIONS (Use recommended instructions)

A. True and False type:

- _____ 1. Sonora 64 does not lodge even after heavy fertilization.
- _____ 2. Sonora 64 is resistant to loose smut.
- _____ 3. Pb. c591 is resistant to rust.

B. Completion type:

- _____ 1. Sonora-64 starts _____ the grains just after maturity.
- _____ 2. RS 31-1 escapes from black rust because of _____.
- _____ 3. Sonora-64 matures within _____ months.

C. Multiple-choice type:

- _____ 1. The average number of tillers in a Sonora-64 plant is:
 - a. 5
 - b. 10
 - c. 15
 - d. 20

2. The variety of wheat which is resistant to loose smut is:

- a. NP 718
- b. C 281
- c. Pb. c 591
- d. Sonora-64

3. The number of irrigations required for Sonora-64 in Western U.P. is:

- a. 4
- b. 6
- c. 8
- d. 10

D. Matching type:

Part A

- 1. Sonora-64
- 2. Yellow rust
- 3. Pb. c 591
- 4. Loose smut

Part B

- A. A long duration variety
- B. A weed
- C. A short duration variety
- D. An insect pest
- E. A disease of wheat which attacks the stem and leaf.
- F. A disease which may be recognized at the time of ear head formation.

"SITUATION-TO-BE IMPROVED" TYPE OF LESSON PLAN

Committee No. 4 B:

J. P. Sharma
M. V. Yasurathnam
R. S. Upadhyaya
D. V. S. Malik

Unit: Poultry.

Problem area: Housing for poultry.

Suggested teaching time: 80 minutes.

Objectives: To develop in the students the effective ability to properly house a poultry flock.

Problem Situation: (First day) Ramlal has a very serious problem connected with his project in managing his home poultry flock and asks for your help. Ramlal has been a good worker in helping several of you solve your problems. So I am sure you will be glad to lend a hand to help. His poultry house needs considerable overhauling. Some of yours do, too. His folks don't own the property so he is limited in how much outlay he can make. Of course, you cannot be of help until you see his present layout and learn his wishes and plans. So we will make a field trip tomorrow, get data on the whole project situation, then come back and plan our study as a basis for making our best recommendations for Ramlal.

Information gained from field trip:

1. Dimensions of poultry house: 10' x 20'.
2. Type and condition of roof: Thatch, but not water proof on west side.
3. Type and condition of windows: 3/4" wire-gauge screen.
4. Location of house: House at base of hill. Water runs into house during heavy rains.
5. Number of laying hens: 100.
6. Breed of poultry: White Leg horn
7. Nests, roosts, etc.: Clay pots for nests. No roosts.
8. Preventive measures against predators: None.
9. He does not own the property.

Developing the solution to the problem: (Second day) The teacher with the help of the students will construct a chart on the chalk board, listing characteristics and requirements of poultry housing and why these requirements are to be met in Ramlal's situation. Through class discussion and supervised study the class will make appropriate recommendations.

Statement of the problem:

What changes, if any, should Ramlal make in his poultry house?

References for supervised study:

1. Approved Practices in Poultry Production, by Hiddle and Juergenson, chapter V, pages 113-115.
2. Poultry Management, by William W. Stopper and Dr. Pran Vohra, page 38.
3. Poultry Keeping, by P. Naidu, pages 118-120.
4. "Poultry Keeping in Villages", by C. Prasad and V. Prakash.

Teaching Aids:

1. Charts showing space for ventilation and doors in the house.
2. Charts showing arrangement of equipment in poultry house.
3. Models and actual specimens of nests, feeders, waterers and roosts.

(This material to be developed on chalkboard)

Characteristics and requirements	What and Why	Ramlal's situation	Recommendations
1. Size of the Poultry House	There should be 3 Sq. ft. space per layer for White Leghorn and 3 1/2 sq. ft. for R.I.R. to overcome the problem of heat, ventilation and over crowding.	He has 200 sq. ft. area for 100 layers, or 2 sq. ft. per layer.	He cannot increase the area but he can reduce the size of the flock to 66 or 67, as White Leghorns needs 3 sq. ft per layer.
2. Roof	Thatched and water proof on all the sides to create sanitary conditions for keeping birds healthy and free from disease.	Thatched roof, but not water proof on west side.	Should be repaired with the help of thatch grass (moonj or pannigrass)
3. Windows	1 1/2 sq. ft. of window space for every 10 sq. ft. of floor space. Requirements reduce by 1/2 for hill area. Cover with 3/4" wire gauge screen.	3/4" wire gauge screen is provided. He has 2 windows, each 3'x3'.	The area of the windows is alright but he should provide some cover to guard against heat, cold and rains.
4. Location of the house.	Low and damp places should be avoided so as to minimise the mortality due to infections.	Water enters into house during heavy rains.	A bund outside the house parallel to the hill with a drainage channel should be constructed to prevent the entrance of water into the house.

5. Equipment a. Nests	<p>1. Nests should be provided for the following reasons:</p> <p>a. For keeping individual records. (use trap-nests)</p> <p>b. Eggs may not be broken.</p> <p>c. 5 hens need 1 nest (or clay-pot).</p>	He has only six clay pots.	7 more clay pots should be provided.
b. Roosts	For Hygienic condition and exercise, there must be roosts in the poultry house. Space of about 8" to 12" per layer should be provided.	None	3 Bamboo roosts should be provided, each of 11' x 2 x 1/2 with two bamboos fitted lengthwise.
c. Safety from predators.	1. Plastering with cement outside the walls to 6" below ground level and to 1 ft. above.	Broken concrete plaster with some holes dug by rats.	<p>1. Plastering with cement.</p> <p>2. Closing of holes.</p>

SOME EVALUATION QUESTIONS: (Use recommended instructions)

A. Multiple choice type:

1. A White Leghorn bird requires floor space of
 - a. 2 sq. ft.
 - b. 2 1/2 sq. ft.
 - c. 3 sq. ft.
 - d. 3 1/2 sq. ft.
2. There should be a space of 1 1/2 sq. ft. of window space for every.
 - a. 8 sq. ft. of floor space.
 - b. 10 sq. ft. of floor space.
 - c. 12 sq. ft. of floor space.
 - d. 15 sq. ft. of floor space.
3. The poultry house windows can be covered most economically and adequately with a wire gauge of
 - a. 1/4"
 - b. 1/2"
 - c. 3/4"
 - d. 1"
4. Roosts are useful for
 - a. Providing exercise.
 - b. Providing sleep.
 - c. Creating hygienic conditions.
 - d. All of them.

5. Five nests will be sufficient for

a. 15 hens.

b. 20 hens.

c. 25 hens.

d. 30 hens.

B. True and false type:

_____ 1. Poultry houses should be constructed in low and damp places.

_____ 2. Waterers and feeders should be placed apart a distance of 3' in the brooder house .

_____ 3. A poultry house should not be constructed near the family dwelling as it causes unhygienic conditions.

_____ 4. Poultry houses with thatched roofs are cooler in summer than those roofed with asbestos cement sheets.

"FORKED-ROAD" TYPE OF LESSON PLAN

Committee No. 4 C:

M.S. Tomar
Bhopal Singh
T.C. Basu
K.T. Ramachandra
S.P. Singh

Unit: Crop production.

Problem Area: Crop Rotation.

Suggested Teaching time: 90 minutes.

Objectives: To develop in the student the ability to select a suitable crop rotation that will suit the needs of his particular situation.

Problem situation:

1. Vijay is having an acre of rented land situated in Meerut Distt., U.P. This land is 3 miles away from the Meerut City.
2. Soil type: loam to clay loam.
3. Annual rainfall ranges between 30" to 40".
4. Fertilizers, improved seeds and other crop production materials are available from government seed store situated nearby.
5. Marketing facilities for green pods are available.
6. Vijay has harvested hybrid maize Ganga No. 3 from this field at the end of October.
7. The field is having irrigation facilities provided by a private tube well.
8. Hired labour is available for different operations.

Statement of the Problem:

Should Vijay grow peas or wheat after Hybrid maize Ganga No. 3?

Factors to be considered:

1. Production costs for pea.
2. Production costs for wheat.
3. Marketing of green pods.
4. Net Income from pea.
5. Net Income from wheat.

Suggested References:

1. Package of Improved Agronomic Practices for obtaining high yields of new high yielding varieties (Mexican Wheats) Sonora-64, Lerma Rojo; Deptt. of Agriculture, Regional College of Education, Ajmer. (mimeograph).
2. Instructional Materials (Mimeograph) No. 2, August, 1965. 'Improved Crop Varieties and Their Fields', Department of Agriculture, Regional College of Education, Ajmer. Page No. 4-Ganga Hybrid No. 3.
3. Wheat, by B.P. Pal. Page No. 297.

1. Facts needed to make decision:

(Note: In this chart, for calculation purposes production and income figures are taken from Bonneville Peas and Sonora 64 Wheat varieties.)

I. EXPENSES:

Sl. No.	Item	Peas	Total	Wheat	Total	Remarks
1.	<u>Land Revenue</u>	5.00	5.00	5.00	5.00	1. Acre of land for 6 months @ Rs.10/- per year.
2.	<u>Field Preparation:</u>					
a.	One deep ploughing	16.00		16.00		At the rate of Rs.8/- per day.
b.	Ploughing by desi plough	32.00		40.00		Peas - 3 ploughings Wheat- 4 ploughings @ Rs.8/- per day followed by planking.
c.	Harrowing	-		8.00		2 Harrowing @ Rs.8/- per day.
d.	Planking rolling etc.	8.00	56.00	12.00	76.00	Finally one rolling and planking is done for good filth.
3.	<u>Fertilizer application:</u>					
a.	Ammonium Sulphate.	8.40		96.60		20 kg. of AmSo ₄ is given to peas as start nitrogen.
b.	Superphosphate	66.50		44.84		1. 175 kg. superphosphate for peas. 2. 118 kg. superphosphate
c.	Muriate of potash	-		10.75		25 kg. of M. Potash for wheat @ 0.48 paise per kg.
d.	Mixing of fertilizer	4.00		4.00		2 persons are required

<u>Sl. No.</u>	<u>Item</u>	<u>Peas</u>	<u>Total</u>	<u>Wheat</u>	<u>Total</u>	<u>Remarks</u>
4.	<u>Seeds and Seeding:</u>					
	a. Seed Cost	112.00		56.00		1. 28 kg. of peas @ Rs.4/- per kg. 2. 40 kg. of wheat @ Rs.1.40 per kg.
	b. Seed treatment	2.00		2.00		-
	c. Seeding Cost	10.00	124.00	10.00	68.00	1 man and 1 pair of bullock @ Rs.2/- man and Rs.6/- for bullocks
5.	<u>Irrigation:</u>	45.00	45.00	90.00	90.00	3 acre inches for peas (3 irrigations) @ Rs.15/- 6 acre inches for wheat (6 irrigations)
6.	<u>Hoing and Interculture:</u>	10.00	10.00	20.00	20.00	-
7.	<u>Insecticides and fungicides</u>	7.50	7.50	7.50	7.50	BHC and DDT applied.
8.	<u>Pickings of the pods and transport.</u>	72.00	72.00	-	-	75 maunds of pods per acre picking 2 mds. per day for 5 weeks by one person.
9.	<u>Harvesting and transport</u>	14.00	14.00	30.00	30.00	-
10.	<u>Threshing</u>	10.00	10.00	75.00	75.00	60 mds. wheat @ 1.75 per md.
11.	<u>Marketing:</u>	8.00	8.00	16.00	16.00	-

II. GROSS INCOME

Sl. No.	Item	PEAS		WHEAT	
		Quantity	Amount	Quantity	Amount
1.	Green pods @ Rs. 0.62 per kg.	3000 kgs.	1860.00	Nil	Nil
2.	Seed grain @ Rs. 1.50 per kg. for pea; Rs. 0.80 per kg. for wheat.	200 kgs.	300.00	2400 kgs.	1920.00
3.	Bhusa. - Pea @ Rs. 2.50 per q.; wheat @ Rs. 20.00 per q.	1000 kgs.	25.00	2400 kgs.	480.00
Total: Rupees			<u>2185.00</u>		<u>2400.00</u>

III. NET INCOME

	<u>Peas</u>	<u>Wheat</u>
Gross Income	2185.00	2400.00
Expenditure	<u>430.00</u>	<u>563.19</u>
Net Income	<u>1754.60</u>	<u>1836.81</u>

Difference of two crops: Rs. 1836.81 - 1754.60 = Rs. 82.21

Some Information needed to be discussed in the class:

- A. What do we mean by Mexican Wheats ?
- B. Merits and demerits of Sonora 64 vs. Bonneville.

Bonneville Pea:

- 1. The green pods are perishable and risky.
- 2. Much labour is required for picking of pods daily.
- 3. Pea is a leguminous crop which adds to the soil fertility.
- 4. Less manure is required.
- 5. Highly susceptible to frost and diseases.

Sonora-64 Wheat:

- 1. Heavy manuring is needed to ensure good yield.
- 2. The crop is not risky to the owner.
- 3. Wheat Sonora 64 suits the present needs of the nation for food.
- 4. Birds and other animals can cause less damage to this crop.

Decision: Keeping in view the marginal difference of Rs.82.21 between the Bonneville Pea and Sonora 64 Wheat, it would be advisable for Vijay to grow Sonora-64 Wheat after hybrid maize, because of the following reasons:

- 1. Sonora 64 wheat is sown till November, so there is sufficient time for land preparation after harvesting Ganga No. 3 hybrid maize.
- 2. Peas are highly susceptible to frost while wheat is not.
- 3. Adequate manuring and irrigation facilities are available for wheat.
- 4. The green pods are perishable and risky and the rates in the market are fluctuating daily.

Suggested Improved Practices For Sonora-64 Wheat:

1. Plough land to well pulverised condition and sow seeds not deeper than 2".
2. Apply fertilizers @ 46 kgs. of N/Acre; 18 kg. of P 205; 25 kg of K 20 per acre.
3. Sow 40 kgs. seed per acre, 6" to 9" apart between rows.

SOME EVALUATION QUESTIONS: (Use recommended instructions)

A. Multiple choice type:

1. If the young pods of Bonneville pea are affected by frost, the cause may be:
 - a. Too early sowing.
 - b. Too late sowing.
 - c. First irrigation late.
 - d. First irrigation early.
2. The cause of poor and scanty germination in wheat Sonora-64 could be:
 - a. Early sowing.
 - b. Late sowing.
 - c. Lack of soil moisture.
 - d. Excessive soil moisture.

B. Completion type:

- _____ 1. The seed rate for Bonneville variety of pea is _____ kg. per acre.
- _____ 2. The first plucking of pods in Bonneville pea is done at the age of _____ days.
- _____ 3. Ganga Hybrid Maize No. 3 is harvested _____ days after sowing.

- _____ 4. The recommended seed rate for wheat Sonora-64 is _____ kg. per acre.
- _____ 5. The best sowing time for wheat Sonora 64 in Western U.P. is _____.
- _____ 6. The best time for sowing pea (Bonneville) in Western U.P. is _____.
- _____ 7. Wheat Sonora-64 needs _____ irrigations.
- _____ 8. The average yield of green pods in Bonneville pea is _____ kg. per acre. For wheat Sonora-64 it is _____ kg. per acre.

C. True and false type:

- _____ 1. The net income per acre is more in case of Bonneville pea as compared to wheat Sonora-64.
- _____ 2. The cost of production in the case of Sonora-64 is more than Bonneville pea.
- _____ 3. The manuring requirement of Bonneville pea is 56 kg. of P205 per acre.
- _____ 4. The manurial requirement of Sonora-64 wheat is 46 kg. N2, 18 kg. P20 and 12 kg. K20 per acre.
- _____ 5. A farmer should follow Sonora-64 wheat after hybrid maize instead of Bonneville pea to get more net returns.

D. Matching type:

Column A

- _____ 1. An organo mercurial compound.
- _____ 2. An insecticide
- _____ 3. A dwarf wheat
- _____ 4. A leguminous crop
- _____ 5. A herbicide

Column B

1. Bonneville pea
2. 2, 4-D
3. B.H.C.
4. Sonora-64
5. K-68
6. Agrosan G.N.
7. Hybrid Maize

"EFFECT-CAUSE" TYPE OF LESSON PLAN

Committee No. 4 D:

U.S. Sisodia
M.P. Chaudhary
Y.P. Singh
P.C. Jain
J.C. Malik

Unit: Crop production.

Problem area: Maize Fertilization.

Objectives: To develop in the students the effective ability to side-dress the maize crop with Nitrogen fertilizers.

Problem Situation: Ranjeet comes to the class with a few plants of maize crop 10-12 inches long, lower leaves completely yellowish and upper leaves starting to yellow from centre. He wants to know the cause of the yellowing and how to cure it.

Procedure for teaching: After introducing Ranjeet's situation, the teacher will help the class arrive at possible causes of the yellowing leaves. The class will evaluate each possible cause to determine if it is the true cause.

Problem: What caused Ranjeet's maize to yellow, and what can he do to cure it?

Possible causes of yellow leaves:

1. Lack of adequate nutrients like N₂, P₂O₅ and K₂O.
2. Stem Borer attack.
3. Yellowing of maize disease.
4. Presence of termites.
5. Lack of adequate drainage.

Discuss the above possibilities one by one:

1. Borer attack: The stems of plants are examined and no holes are found. So there is no possibility of stem borer attack.

2. Yellowing of Maize: In this case leaves become yellow from margins to centre, not from centre to margin. This tentative cause is also discarded.
3. Termite's effect: The roots of the maize plants brought by Ranjeet are examined and found that they do not show termite attack. This possible cause is also discarded.
4. Lack of adequate drainage: Ranjeet was asked if there is stagnation of water in this field. Answer: No. Effect of stagnant water on leaves: Yellow colour starting from the margin, not the midrib, so there is no possibility of this tentative cause.
5. Lack of adequate nutrients: Main nutrients needed by maize: (a) P205 (b) K2O (c) N2.
 - a. P205: No effect of yellowish colour due to the deficiency of P205 so it is also discarded. (P205 deficiency causes leaves to have a purplish colour.
 - b. K2O: Due to deficiency of K2O leaves become brownish. There is no symptoms of this type so this is also discarded. (K2O deficiency causes yellowing of leaves from edge to centre).
 - c. N2: These are the characteristics of the deficiency of N2:
 - i. Pale green or yellowish green leaves.
 - ii. Stunted growth and reduced size of forage.
 - iii. Yellowish and drying generally extend from leaf midrib to edge.

Questions to ask Ranjeet:

1. Have you applied green manure? No.
2. Have you used FYM, compost, or chemical fertilizers? No.

Conclusion: It means yellowish leaves, stunted growth, and paleness of leaves from centre in maize is the effect of the deficiency of N2 only.

APPROVED FERTILIZATION PRACTICES:

Quantity of fertilizers:

Maize requires forty kgs. of N₂ per acre (200 kg. of Am S04).
Use 5 cart loads FYM before planting.

Time and Method of application:

1. 70 kg. of Ammonium Sulfate used at the time of seed sowing.
2. 70 kg. of Ammonium Sulfate top dressed when plants are about knee high.
3. Remaining dose used when plants are at flowering stage.

Class Recommendation For Ranjeet:

1. Ranjeet is advised to apply 50 kg. of Ammonium Sulfate to his maize crop of 1/2 acre as side dressing at this stage.
2. Second dose of 50 kgs. Ammonium Sulfate to be applied to his crop at tasseling stage.

Follow-up:

This class is taken to Ranjeet's farm and the student's are allowed to side dress the maize under the supervision of the teacher.

References:

1. Hand Book of Manure and Fertilizer, by I.C.A.R., New Delhi, 1964.
2. Using Commercial Fertilizers, by McVikar. The Interstate Printers and Publishers, Danville, Illinois, May, 1966.

SOME EVALUATION QUESTIONS: (Use recommended instructions)

A. Multiple choice type:

1. The main characteristics of deficiency of N₂ in maize crop is:
 - a. Leaves become brownish.

- b. Pale green or yellow-green leaves.
 - c. Yellowish leaves.
 - d. Yellow leaves from the margin to the centre.
2. At the time of seed sowing the quantity of ammonium sulphate required for an acre of hybrid maize is:
- a. 15 kgs.
 - b. 50 kgs.
 - c. 70 kgs.
 - d. 90 kgs.

B. Completion type:

- _____ 1. The quantity of N_2 required for an acre of hybrid maize is _____ kgs. and for this we should add _____ kg of CAN.
- _____ 2. The most critical stage of hybrid maize is known as _____ stage at which top dressing of _____ kg. of ammonium sulphate is essential.

C. True and false type:

- _____ 1. Nitrogen fertilizer should not be applied at tasselling stage in the maize crop.
- _____ 2. Brownish leaves in maize indicate the deficiency of K_2O .
- _____ 3. Maize plants do not bear "wet feet".
- _____ 4. We are required to do soil treatment against termites.

PLANNING THE ANNUAL PROGRAMME OF INSTRUCTION FOR EACH CLASS

Committee No. 5:

Bhisham Pal Singh
H.H. S. Yadav
M.P. Chaudhary
Bhopal Singh
N. Jayasheela

Consultants:

S.P. Singh
V.C. Kimothi
L.E. Hedges

This is the Purpose

The teacher of agriculture is charged with the responsibility of providing training that meets the needs of his students. The basic guide lines the teacher is supposed to use in planning this training is the school syllabus in agriculture. In most schools, this syllabus is prescribed by the state educational authorities. The teacher has little to say as to the basic content. However, the internal framework of the syllabus usually permits enough flexibility for the teacher to adjust the specific instructional units to meet the needs of the pupils.

In addition to meeting the educational training needs of his pupils, the teacher must fit his programme into the total school programme. The teacher must coordinate field trips, demonstrations and practical activities with the total school calendar. It is therefore necessary that effective instruction in agriculture requires effective planning on the part of the teacher in cooperation with the school administration.

Therefore, the specific purposes of this report are:

1. To suggest some factors to consider when planning the programme of instruction for each class on an annual basis.
2. To assist the teacher in keeping subject matter up-to-date.
3. To assist the teacher in making agricultural enterprise instruction more useful and practical.
4. To help the teacher cover the curriculum content within the allotted time.
5. To assist the teacher in doing a more effective job of teaching.

This is the Situation

1. Teachers have difficulty in completing the prescribed syllabus within the year's time.
2. Teachers have difficulty in planning field trips, preparing teaching aids, and obtaining resource material for the lessons.
3. Some agricultural information is repeated during the year and from year to year to the same students.
4. Teachers sometime waste time and energy in carrying out their teaching duties.
5. Teachers do not always meet the needs of their students. Students in a department of agriculture have many varying needs. The teachers find it difficult to meet these many needs.
6. Many school departments of agriculture do not have any long-time plans for agricultural education in their communities.
7. There are many students in each section of agriculture who do not have farm land and livestock at home, and who also have no background in agriculture. The teacher is at a loss as to what, when and how to teach these students.
8. Some teachers find that holidays and examination periods upset their teaching schedule.
9. School administrators do not always understand the problems of the agricultural teacher in meeting the needs of his pupils.
10. The prescribed syllabus is not always up-to-date in its content.
11. Teachers are not aware of the importance of planning their teaching on an annual basis and how to do it.

This we can Do

1. The teacher should interview each prospective student to learn his agricultural interests, his knowledge of agriculture, and his opportunities in farming.
2. The teacher should survey the community to determine main crop enterprises, common crop production practices, crop yields, kinds of livestock enterprises, livestock production practices, and rural cultural activities and customs.
3. The teacher should obtain a list of school holidays and other school activities that would take students away from class.
4. Using the above information and the present syllabus prescribed by the state educational authorities, the teacher should prepare a written annual programme of instruction for each class. The following steps may prove helpful to the teacher in making the annual plan:
 - a. Use a programme of instruction sheet (either printed or hand-made) that provides space for each week of the school year, number and dates of holidays and examinations, what is to be taught each week and the number of periods allotted for the lessons.
 - b. Study the present syllabus and the information obtained from student interviews and the community survey. Identify the main areas of instruction, such as crop production, farm mechanics, etc. Allot the number of periods according to the importance of the enterprises.
 - c. Break the enterprises down into units of instruction. Break the units down further into problem areas.
 - d. Decide on the estimated number of days to be devoted to each problem area.
 - e. Decide on which class and in what month to teach each problem area. The time to teach each problem area should be determined by the seasonal needs of the enterprise. Problem areas should also be taught in sequence of job operations.

- f. The annual programme should provide time for both theory and practical teaching.
- g. Before listing the problem areas on the annual programme sheet, the teacher should consider the background and abilities of the students. The teacher should start with simple, basic information and proceed to the more complex information.
- h. Production practices common to a number of areas should be taught only once and in the form of "principles." For example, seedbed preparation practices common to Kharif crops could be taught at one time. This practice would avoid repetition in teaching and would provide time for new units.
- i. Place the lessons or problem areas to be taught on the annual programme sheet. The information should be done in pencil to provide for future changes. This practice makes the annual plan more flexible. In allotting periods for each lesson, subtract holidays and examination time to determine periods available for teaching.
- j. Provision for field trips and practical work should be provided for in the written plan.
- k. Revise the annual programme of instruction as needed. However, the teacher should make every attempt to teach areas as scheduled. Otherwise, he will not be able to solve his problem of too much to teach and too little time in which to teach it.
- l. Break the weekly plan down to a day-by-day, period-by-period plan.
- m. The teacher, along with his administrator and students, should evaluate the programme of instruction at the end of the year for future planning activities.

The following is an example from an annual programme of instruction for an agricultural class:

ANNUAL PROGRAMME OF INSTRUCTION

Subject: Agriculture

Class: XI

Year: 1967-68

School:

Week	Holidays and Special events	Total Teaching Periods	Agricultural Economics and Rural Sociology (195 periods)	No. of Pds.	Agricultural Engineering Technology (127 periods)	No. of Pds.
July 3-8		10	Unit 1: Introduction to Farm Management (Importance of Planning in farm management)	6	Unit 2: Soil and Water Management: a. Classification of Soils.	4
July 10-15		10	Relationship of Land, Labour, Capital and Management to Successful Farming.	6	b. Classification of Soils.	4
July 17-22		10	Relationship of Land, Labour, Capital and Management to Successful Farming.	6	c. Classification of Soils. (Field trip to farm for practice.)	4
July 24-29		10	Unit 2: Planning The Farm Operation. I. a. Importance of Farm Records and Accounting	6	d. Types of Drainage Systems. (Internal and surface).	4
July 31- Aug. 5		10	b. Types of Records	6	e. Types of Drainage Systems.	4

Aug. 7-12	10	c. Methods of Keeping Records and Accounts.	6	f. Types of Drainage System	4
Aug. 14-19	15th Ind. Day 19th F. Bandhan	d. Analyzing Farm Records (Practical).	5	g. Planning a Drainage System.	3
Aug. 21-26	10	II. a. Inventorizing Farm Resources. (Land, Soil and Water.)	6	h. Planning a Drainage System.	4
Aug. 28- Sept. 2	28th. Jannashami	b. Buildings.	5	i. Soil Conservation Practices.	3
Sept. 4-9	7th Ganesha Chaturthi.	c. Labour.	5	j. Soil Conservation Practices.	3
Sept. 11-16	10	d. Finances "Test".	6	k. Soil Conservation Practice "Test".	4
Sept. 18-23	10	III. a. Planning the Cropping System (Crop rotations).	6	Unit 1. Farm Building and Conveniences: a. Building Construction Selecting design.	4
Sept. 25-30	10	b. Cropping System.	6	b. Determining Needs for Building.	4
Oct. 2-7	2nd Gandhi's Birthday.	c. Selecting a Cropping System (Practice).	5	c. Planning Farm Buildings.	3
Oct. 3-14	11th-Nov. 14th Autumn Break.	d. Relationship of Crop Selection to a Balanced Farming Operation.	4		

ESTABLISHING THE FUTURE FARMERS OF INDIA ORGANIZATION IN THE SECONDARY SCHOOL

Committee No. 6:

Bhisham Pal Singh
H.H.S. Yadav
Bhopal Singh
M.P. Chaudhary
N. Jayasheela

Consultants:

S.P. Singh
V.C. Kimothi
Lowell E. Hedges

This is the Purpose

The responsibility of the teacher of agriculture is to prepare boys to be effective farmers of the future. Traditionally, this training involves primarily the teaching of technical agriculture and the development of production skills and abilities. However, in modern-day rural society, the farmers must possess skills and abilities other than those needed for the production of crops and livestock. He must know how to effectively communicate with his neighbours and professional people, how to assume leadership responsibilities in his rural community, and how to effectively work for the improvement of the rural society in general.

Teachers of agriculture see a need to develop these non-technical abilities in farm youth enrolled in their classes in the secondary school. They are searching for ways and means by which they can train farm youth to be better citizens of the rural society.

With these needs in mind, the committee has attempted to:

1. Present specific non-technical skills and abilities needed by the farmer in modern-day rural society.
2. Suggest a type of organization for students enrolled in agriculture in the secondary school that would serve as a teaching device for developing these non-technical skills.
3. Suggest ways and means by which this organization can be established and a definite programme of activities developed for this organization.

This is the Situation

1. Not enough farmers possess the ability to be effective leaders in the rural community.
2. Farm boys and young men lack confidence in themselves and in their ability to do effective work.
3. There could be a better relationship between teacher, student, and parent.
4. Students and teachers are not always knowing how they can be most useful to the country.
5. Farmers do not always know how to organize a functional body.
6. Farmers do not always know how to be an effective member of a functional body.
7. There is a lack of organized recreational activities in the rural community.
8. Farmers do not always have the ability to work together in cooperative effort.
9. Farm boys are not sufficiently interested in choosing agricultural occupations.
10. There is a lack of knowledge on the part of rural people in how to improve the farm home and its surroundings.
11. There is a shortage of intelligent scholars in the field of agriculture.
12. There is a lack of knowledge in farm boys and their parents of how to develop individual farming programmes and to become established in farming.
13. Vocational courses in agriculture are not existing in the country.

This we can Do

1. The agriculture teacher should discuss in his classes the values of an organization such as the F.F.I.
2. The teacher should collect sufficient information about the F.F.I. organization.
3. The teacher should start an F.F.I. organization in the school.
 - A. The teacher and students should frame objectives for the F.F.I. organization. Some suggested objectives are:
 - a. To develop competent, aggressive, rural and agricultural leadership.
 - b. To create and nurture a love of country life.
 - c. To strengthen the confidence of farm boys and young men in themselves and their work.
 - d. To create more interest in the intelligent choice of agricultural occupations.
 - e. To encourage members in the development of individual farming programmes and establishment in farming.
 - f. To encourage members to improve the farm home and its surroundings.
 - g. To participate in worthy undertakings for the improvement of agriculture.
 - h. To develop character, train for useful citizenship and foster patriotism.
 - i. To participate in cooperative efforts.
 - j. To encourage and practice thrift.
 - k. To encourage improvement in scholarship.
 - l. To provide for and encourage the development of organized rural recreational activities.

- B. A motto should be framed for the F.F.I. organization based on the organizations' objectives. A suggested motto is:

" Learning to do,
Doing to learn,
Earning to live,
Living to serve."

- C. The teacher and students should develop an emblem for the organization. A suggested emblem and its meaning follows:

THE F.F.I. EMBLEM



This is the suggested emblem of the Future Farmers of India. The emblem, significant and meaningful in every detail, is made up of five symbols: the cow, the plough, the rising sun, and the head of rice, within the body of the Peacock. Upon the face of the emblem appear also the words, "Vocational Agriculture" and the letters "F.F.I.". The cow is symbolic of the ancient heritage of agriculture; the plough is the symbol of labour and tillage of the soil; the rising sun is emblematic of progress and the new day that will dawn when all farmers are trained and have learned to cooperate; and the head of rice represents common agricultural interests since rice is grown in every state; and the Peacock is indicative of the (future) national scope of the organization.

D. The following office bearers should be elected:

- a. President
- b. Vice-President
- c. Secretary
- d. Organising Secretary
- e. Reporter
- f. Treasurer
- g. Class representatives.

E. The following standing or permanent committees should be organised:

- a. Public Relations Committee
- b. Conduct of Meetings Committee
- c. Community Service Committee
- d. Recreation Committee
- e. Earnings and Savings Committee
- f. Cooperation Committee
- g. Scholarship Committee
- h. Leadership Committee
- i. Supervised Farming Committee

F. For each permanent committee, the teacher and students should develop an objective, specific goals to achieve this objective, and ways and means to achieve these goals.

a. PUBLIC RELATIONS COMMITTEE

Objective: To keep the people of the community well informed of the aims and accomplishments of the F.F.I.

<u>1967-68 Goals</u>	<u>Ways and Means</u>	<u>Accomplishments</u>
1. Have at least one article per week in local news papers.	a. Reporter write and invite articles from the members on F.F.I. activities. b. Have all articles checked by advisers.	
2. Have two articles in each edition of school paper.	a. Reporter write and invite articles on F.F.I. activities. b. Have all articles checked by advisers.	
3. Put on at least one radio programme during the year.	a. Programme planning should be done by the members in advance. b. Have it checked by advisers. c. Have secretary plan with radio authorities.	
4. Have an organization booth at the local fair.	a. Have sub-committee appointed for this purpose. b. Have finances sanctioned. c. Hold exhibition regarding F.F.I. activities.	
5. Have 100% members use F.F.I. emblems.	a. Have it resolved that each member shall pay for the emblem. Specify its use.	

6. Present at least three programmes before community organizations.
 - a. Committee to plan the programme in advance.
 - b. Base it on F.F.I. activities.
 - c. Secretary to publicise the programme.
7. Erect F.F.I. 'Welcome' signs at school limits.
 - a. Design to be discussed and approved by members.
 - b. Have expenditure sanctioned.
 - c. Have administration give permission.
 - d. Committee to erect the signs.
8. Have field trips to nearby villages for increasing the number of members.
 - a. Select the responsive villages.
 - b. Prepare brief lectures.
 - c. Distribute hand bills regarding F.F.I. activities.
9. Have village parent-son banquets.
 - a. Have villagewise committees of members.
 - b. Organization to finance activity.
 - c. Present awards through parents.
 - d. Hold during Republic day ceremonies, etc.
10. Have an F.F.I. activities report published once a year.
 - a. Reporter prepare the annual report from committee reports.
 - b. Have it checked by advisers.
 - c. Have it adopted by the General Body.
 - d. Have it published.

b. CONDUCT OF MEETINGS COMMITTEE

Objective: To develop in the members the ability and skill in effectively planning and conducting meetings in a dignified manner.

<u>1967-68 Goals</u>	<u>Ways and Means</u>	<u>Accomplishment:</u>
1. Hold F.F.I. chapter meetings (General or executive) as and when they need to be held.	a. Information to the members about the place of meeting, time of meeting, and agenda of the meeting well in advance (at least 10-15 days). b. Provide all physical facilities for the meeting: i. sufficient accommodation. ii. lighting iii. ventilation iv. drinking water. c. Collect fairly in advance the necessary requisites such as literature, laboratory equipments, depending upon the nature of the agenda. d. Make necessary arrangements to provide facilities (lodging and boarding) for the guest speaker or resource personnel if needed. e. Keep up-to-date records of previous meetings. f. Approval from the headmaster for getting better cooperation.	
2. Hold regularly scheduled meetings.	a. Meet last Saturday of each month or last day of the month.	

3. Have 80 percent attendance at all meetings.
 - a. Personal approach of officers to the members.
 - b. Place the agenda on notice board.
 - c. Seek the cooperation with the other committees, such as recreation committee.

c. COMMUNITY SERVICE COMMITTEE

Objective: To help the F.F.I. members to improve their homes and communities in which they live.

<u>1967-68 Goals</u>	<u>Ways and means</u>	<u>Accomplishments</u>
1. 100% of members to participate with parents in home beautification.	<ol style="list-style-type: none"> a. Each member join in general fall and spring clean-up on his home or farm. b. Each member to have potted flowers. 	
2. 100% members participate in school beautification and school improvement programme.	<ol style="list-style-type: none"> a. Each member to have 2 flower pots. b. Levelling of school grounds by members. c. Present the cost of levelling the grounds. 	
3. Have at least 10% of the members plant trees as an improvement.	<ol style="list-style-type: none"> a. At venamahotsava (Tree planting) each member put at least one plant in the vicinity of the school village. 	

4. Have at least 10% of the members participate in insect and pest control.
 - a. Purchase pesticides and insecticides for members to buy.
 - b. Have rat eradication programme.
 - c. Present movies on rat control and insect control.
5. Have livestock show with at least 10% of members participating.
 - a. Rent fair grounds.
 - b. Provide equipment for animals.
 - c. Present suitable awards.
6. Have at least 10% of members participate in making compost.
 - a. Committee to select suitable place.
 - b. Committee to oversee activity.

d. RECREATION COMMITTEE

Objective: To develop a well balanced socio-recreational programme for all F.F.I. members.

<u>1967-68 Goals</u>	<u>Ways and means</u>	<u>Accomplishments</u>
1. To provide planned recreation for every meeting.	<ol style="list-style-type: none"> a. Establishment of a committee headed by a comedian. b. Have due approval of the adviser for the programme. c. Sufficient funds and equipment may be secured from organization treasury. 	
2. To develop a cooperative spirit amongst school F.F.I. members.	<ol style="list-style-type: none"> a. Participation of F.F.I. in annual function of the school. b. Participation of F.F.I. in school games and sports. 	

- c. Participation in a Harvest Day festival with the villagers.
 - d. Participation of all members including ex-members in an annual function organized by F.F.I.
3. To create and maintain interest in the total over-all programme of vocational agriculture.
 - a. Occasional display of Film Show concerning Vocational Agriculture by I.C.A.R. and U.S.I.S.
 - b. Organization of picnic cum field trips on the vocational agricultural farm.
 - c. Organization of F.F.I. members' matches including volley ball, cricket, foot-ball, tennis, badminton, Kabaddi and other indoor games. Variety shows such as monoacting, dialogues, etc.
4. To develop in the F.F.I. members the habit of coordination in the various phases of the total programme.
 - a. Organization of coordination committee of F.F.I. members.
 - b. Help in removing the hesitation of all the F.F.I. members.
 - c. Organization of prior rehearsals.
 - d. Prior notification of the programme with consultation with other committees.
5. To develop good thought and planning of programmes.
 - a. Instruct all F.F.I. members to submit a year-round recreational programme.
 - b. Have a meeting to discuss merits and demerits of individual programmes presented by F.F.I. members.
 - c. Formulation of a composite programme.

e. EARNINGS AND SAVINGS COMMITTEE

Objective: To develop in the members the ability to earn, save and spend money wisely.

<u>1967-68 Goals</u>	<u>Ways and Means</u>	<u>Accomplishments</u>
1. Have organisation dues for members.	a. Officers urge members to pay for their membership. b. The committee to recommend how much each class member is to pay.	
2. Have 100% members pay dues.	a. Treasurer to maintain accurate records. b. He may publish lists of students who have paid the membership.	
3. Have rates of vegetable and hybrid seeds.	a. Have 30% of total farm for F.F.I. work. b. Each member to have an individual plot to raise vegetable and hybrid seeds. c. The teacher will supervise the members in growing improved vegetable seedlings according to season.	
4. Have entertainment programme and collect money.	a. Organise drama show in consultation with recreation committee and collect money. Committee may prepare a budget and recommend how much to collect. b. Organize feature film shows on school campus.	

5. Self seasonal greeting cards once a year.
 - a. Committee may request artist of the school to give some models of greeting cards and decide suitable one.
 - b. Committee may prepare a budget on greeting cards and may recommend suitable price for it.
6. Have organisation set up and use a budget.
 - a. Committee to set up a budget based on needs of permanent committees.
7. Maintain accurate and complete organisation financial records.
 - a. Organize and use appropriate record book for treasurer.

f. COOPERATION COMMITTEE

Objective: To develop the ability in the members of the organisation to work with others on democratic lines for the mutual benefit of the members.

<u>1967-68 Goals</u>	<u>Ways and means</u>	<u>Accomplishments</u>
1. To cooperate with two schools of the district where agriculture stream is running.	<ol style="list-style-type: none"> a. The Chairman of the committee will write the agriculture teachers of the schools so as to start F.F.I. at those schools. b. The reporter may send the literature regarding F.F.I. so as to encourage students of those schools to start F.F.I. 	
2. To cooperate with the agricultural agencies of the area.	<ol style="list-style-type: none"> a. The authorities working in Agricultural Extension will be contacted. b. They will be invited to look upon the activities of the organization. 	

3. To cooperate with the school administration and also other associations of the school.
 - a. The officers of the organization will help the members of this organization follow the rules and regulations of the school.
 - b. The organisation Secretary will assist students in organising their functions.
 - c. The members of the associations will be invited to attend F.F.I. activities.
4. To organise a cooperative store to supply poultry feed to members having home projects in poultry.
 - a. Committee, in cooperation with earnings and savings committee, to buy feed ingredients.
 - b. Committee, with help of supervised farming committee, to mix and sell feed.

g. SCHOLARSHIP COMMITTEE

Objective: To help the members of F.F.I. improve their records of academic and extra-curricular activities.

<u>1967-68 Goals</u>	<u>Ways and means</u>	<u>Accomplishments</u>
1. Each member should obtain 55% or more marks in agriculture.	<ol style="list-style-type: none"> a. Maintain F.F.I. honour roll. b. Ask the agriculture teacher to assist. c. Post the honour roll on the bulletin board. d. Invite school Headmaster to discuss scholarship at F.F.I. meetings. e. Utilization of library and journals. 	

2. Members should maintain 95% attendance at the school in the session.

- a. Secretary will check the attendance and will keep records.
- b. Maintain honour rolls of the members having 100% attendance.
- c. Create healthy and interesting atmosphere to motivate the F.F.I. members to be regular.
- d. Provide certificates and prizes for faithful attenders.

3. Provide an F.F.I. library that may be used by all members.

- a. New literature in agriculture to be purchased every year.
- b. Members and others to contribute at least one book which may give the latest information.

c. Purchase small booklets and bulletins.

4. Each member to establish a home library.

- a. Provide list of books with authors.
- b. Provide list of publishers.
- c. Create incentive to purchase books.

h. LEADERSHIP COMMITTEE

Objective: To develop leadership ability and desire among members to assume responsibility to the best of their ability.

1967-68 Goals

Ways and means

Accomplishments

1. Have 100% of members attend each F.F.I meeting.

- a. Agenda should be circulated 7 days before meeting dates.
- b. Meeting should be called at suitable time.
- c. Those who attend every meeting should be given some award.

2. 90% of members participate in organization public speaking contest.
 - a. Each member prepare a 3 minute speech and present it before participants of meetings.
 - b. Local winners represent the organization at the district contest.
 - c. Present F.F.I. and award medal to winner.
3. Conduct meetings according to accepted parliamentary procedure.
 - a. Provide each member with a booklet on parliamentary procedure.
 - b. Provide parliamentary training to all members.
 - c. Hold chapter parliamentary team contest.
4. Have every member serve on at least one committee.
 - a. Each member be on at least one committee according to his choice.
 - b. Have challenging and well planned programme of work.
5. All members fulfil leadership requirements for higher degree.
 - a. Provide members with information in F.F.I. constitution on Indian Farmer Degree form.
 - b. Advisor and leadership committee to check forms.
6. Organization elect a slate of Junior Officers.
 - a. Have election follow regular elections from candidates who are not chosen as regular chapter officers.
 - b. Junior Officers should conduct at least two general business meetings.

i. SUPERVISED FARMING COMMITTEE

Objective: To help develop in the members the ability to improve farming programmes and to carry them to a successful completion.

<u>1967-68 Goals</u>	<u>Ways and means</u>	<u>Accomplishments</u>
1. Have 100% of home projects completed, summarized and analysed.	a. Adviser tell importance of completed project records. b. Conduct accounting contest on projects in each class. c. Committee must maintain its visits record.	
2. Have 100% of crop projects of hybrid seeds.	a. F.F.I. sponser loans to members to purchase hybrid-seeds from N.S.C. 4-West Patel Nager, New Delhi-12. b. F.F.I. to arrange to get seeds from other sources also, i.e. from the Distt. Agriculture Officer of the area.	
3. To conduct field trips to see the projects of each member.	a. Field trip should be planned in advance. b. Any personal vehicle can be used. c. To select one day at the time of sowing, and subsequent visits whenever possible. d. To request administrator to accompany the group.	
4. To promote soil and water conservation.	a. Show conservation films at meetings. b. Members give public speeches to school classes on subject of conservation. c. Members practice conservation on home farms.	

G. Duties and Responsibilities of Student Officers.

a. The President:

1. Preside over and conduct meetings.
2. Call special meetings when necessary.
3. Keep members on the subject and within time limits.
4. President may appoint committees and sub-committees as and when need arises.
5. Represent his own organization and speak on occasion.
6. Coordinate chapter efforts by keeping in close touch with the other officers and members and the advisors.
7. Follow up chapter activities and check on progress being made.
8. Keeping chapter work moving in satisfactory manner.

b. The Vice-President:

1. To assist the president.
2. Preside and assume duties and responsibilities in the absence of the president.

c. The Secretary:

1. Prepare and read the minutes of meetings.
2. Have available for the president the list of business for each meeting.
3. Attend to official correspondence.
4. Send out and post notices.
5. Count and record rising vote when taken.
6. Prepare chapter reports.

7. Keep the permanent record of the chapter.
8. Read communications at meeting.
9. Call meeting to order in the absence of a presiding officer.
10. Have on hand for each meeting the following:
 - a. Secretary's book and minutes of previous meeting.
 - b. Lists of committees and their reports.
 - c. Copies of local programmes.
 - d. Copies of constitutions and bylaws.
 - e. Copy of the official manual.

d. The Organizing Secretary

1. Assist Secretary.
2. Arrange physical facilities.
3. Organize meetings and programme.
4. Assist guests.

e. The Treasurer

1. Receive and act as custodian of organization funds.
2. Assist in preparing an annual budget of estimated receipts and expenditures.
3. Keep the financial records of the organization.
4. To collect dues and make statement and reports.
5. Encourage individual and organization thrift.

f. The Reporter

1. Prepare news articles for publication or broadcast.
2. File clipping and pictures of F.F.I. activities and keep an organization scrapbook.
3. Assist in maintaining bulletin board.
4. Assist with planning and arranging organization exhibits.
5. Arrange for F.F.I. participation in local radio and/or TV programmes.

g. Class Representatives:

1. Publicise the activities of the organization.
2. To assist officers in making satisfactory efforts.
3. Assist Organizing Secretary.
4. Represent class at Executive Committee meetings.

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ADULT FARMER EDUCATION IN HIGHER SECONDARY SCHOOLS

Committee No. 7:

T.C. Bose
D.V.S. Malik
Y.P. Singh
S.M. Jain
R.P. Singh

Consultants:

V.C. Kimothi
S.P. Singh
L.E. Hedges

This is the Purpose

Indian Agriculture, like the rest of the economy, is undergoing rapid changes caused by technological developments, an increase in the nation's population, and many other pressures. Vocational agriculture teachers in the secondary schools are concerned about these nationwide changes and trends in agriculture and business, and are wondering how best to carry out education's role in these changing times.

The teacher of agriculture is especially concerned with the food production problem. The teacher attempts to help improve the production of food and fibre by training boys to be proficient future farmers. At the same time, the teacher is aware that the established farmer is also in need of further training in the use of modern agricultural inputs of production. In searching for ways to adjust his programme to keep pace with the needs of changing times, the teacher is re-examining not only what should be taught in the secondary school agricultural department, but also who should be taught. The question comes to the teacher's mind: should I also teach adult farmers, and if so, what kind of training programme should I establish for them?

The purposes of this committee's report are:

1. To present the need for adult farmer education programmes in the rural higher secondary school.
2. To suggest a type of training course for adult farmers.
3. To suggest ways and means by which this training course can be organized and conducted.

This is the Situation

1. Many farmers are not producing at their maximum potential because they lack tools and other resources, they are illiterate, and also because they cannot afford to pay for modern agricultural inputs.
2. A majority of the established farmers in local communities have not had agricultural training of even a secondary school nature.
3. The fathers of boys enrolled in agriculture in secondary schools are coming to the teacher of agriculture for advice on improved practices in crop and livestock production.
4. The number of farmers coupled with rapid technological advances in agriculture puts too great an educational load on the present number of government agricultural extension workers.
5. Before adopting a new practice, farmers are skeptical about the success of the practice.
6. Farmers are more ready to adopt a new practice if the success of the new practice has been demonstrated in their home area, using local production materials as much as possible and using these on local soil types.
7. Farmers learn more quickly and accept new practices sooner by discussing common production problems in a group environment under the leadership of an agricultural education leader.
8. The basic education principle of "learning by doing" is applicable at all age levels.
9. With normal physical facilities plus a competent agricultural teacher, a secondary school can conduct effective adult farmer education programmes.
10. Government agricultural extension workers are available who can be requested to help and cooperate with agricultural teachers to conduct adult farmer education programmes.
11. The secondary school teacher of agriculture, while supervising a boy's home project, can conveniently

assist the father with production problems. This assistance could well be a follow-up of a systematic classroom instruction programme for adult farmers.

12. Continuing education is vital for the farmer in order that he may become more effective in his vocation.
13. At present, adult education programmes are not being conducted by agriculture departments of secondary schools.
14. Most schools are not well equipped to have extensive adult farmer education programmes.
15. Usually, agriculture teachers are not encouraged by their administrative authorities to conduct any activities.
16. Farmers who have not undergone formal schooling need help.
17. Farmers need guidance and supervision in their farming activities through some type of formal educational programme.
18. Farmers need help in becoming more efficient in producing crops and live stock. This increased efficiency will raise their social and economic status.

This we can Do

1. The agriculture teacher should conduct a survey of the farmers to determine the needed agricultural improvements.
2. He should determine specific skills, such as in crop and livestock production, needed by the farmers so that the adult farmer education programme may meet the needs of the farmers.
3. The agriculture teacher should convene a meeting of village officials like Gram-Sevak, Gram Pradhan and other agriculture extension workers, progressive farmers and farmers' leaders to explore the possibilities of organising an adult farmer education programme.
4. He should formulate the final objectives for the adult farmer education programme to be conducted.

5. He should plan to meet the specific needs of the farmers who are to attend the programme.
6. He should fix a convenient date suitable for farmers, preferably on school festival days which fall in the agriculture slack season.
7. He should fix a meeting time during the day according to the convenience of the farmers and also of a convenient duration.
8. He should select his own school for conducting the programme.
9. The teacher should circulate a detailed time schedule of the programme in advance of the meeting to the prospective participants.
10. Farmers, farmer's leaders, and parents of students (farmers) having common farming problems should be invited to participate in the programme.
11. The number of farmers should be limited according to the facilities and accommodations available in the school. A small group (10-15) is more suitable for effective group discussion.
12. Arrangements for reception, seating, light, water, tea and directions should be made for smooth running of the programme and for the farmers' comfort.
13. Students of agriculture or F.F.I. members (if F.F.I. exists) could be involved in the programme to assist the teacher.
14. School transport facilities should be used for collecting the farmers from different places wherever transport facilities are available. Otherwise, the teacher can depute his students to bring the farmers.
15. Government agricultural officers and extension officers should be requested to help the adult farmer education programme by attending the programme, giving technical talks, helping in demonstrations, providing improved varieties of crops, fertilizers, pesticides, good breeds of milch and draft animals and poultry breeds, etc.

16. An advisory committee may be formed consisting of the agriculture teachers, District Agricultural Officer, Plant Protection Officer, Animal Husbandry Officer, Extension Officer, Sarpanch or Pradhan Gram Sevak and several progressive farmers who may contribute their suggestions and services to make the adult farmer education programme a success.
17. The teacher should use adult psychology while working with adult farmers.
18. Following an adult farmer education programme, the teacher should conduct a follow-up programme to see if farmers are having any problems in applying suggested improved practices.
19. After each adult farmer education programme the teacher should analyse the programme and its results for use in planning future programmes.
20. The teacher should conduct at least two adult farmer education programmes per year as a minimum.
21. Sample adult farmer education programmes are given below to assist teachers in planning their own arrangements.

ADULT FARMER EDUCATION PROGRAMME (JUNE 1 & 2, 1967)
REGIONAL COLLEGE OF EDUCATION, AJMER

JUNE 1, 1967 (THURSDAY)

3:30 P.M.	. . .	Departure of bus to Garhi Malian School (Shri. S. P. Singh).
4:00 P.M.	. . .	Departure of bus from Garhi Malian School to R.C.E., Ajmer.
4:25 P.M.	. . .	Arrival of bus at R.C.E., Ajmer.
4:30 P.M.	. . .	Assemble in class-room.
4:30-4:40 P.M.	. . .	Objectives of the programme (S.P. Singh).
4:40-5:30 P.M.	. . .	"Analysing 1966-67 Wheat Production Practices" (V.C. Kimothi).
5:30-5:45 P.M.	. . .	Tea Break.

5:45-6:30 P.M. . . . "Determining Approved Wheat
Production Practices for 1967-68"
(R.P. Singh).

6:30 P.M. . . . Departure by bus for Garhi Malian
School (V.C. Kimothi).

JUNE 2, 1967 (FRIDAY)

3:30 P.M. . . . Departure of bus to Garhi Malian
School (S.P. Singh).

4:00 P.M. . . . Departure of bus from Garhi Malian
School to R.C.E., Ajmer.

4:25 P.M. . . . Arrival of bus at R.C.E., Ajmer.

4:30 P.M. . . . Assemble in class-room.

4:30-4:40 P.M. . . . Objectives of the programme
(V.C. Kimothi).

4:40-5:40 P.M. . . . "Practical Tips on Growing Maize,
Bajra and Jowar" (S.S. Srivastava
and R.P. Singh).

5:40 P.M. . . . Departure from class-room to
instructional farm, R.C.E., Ajmer.

5:50 P.M. . . . Arrival at the instructional farm,
R.C.E., Ajmer.

5:50-6:20 P.M. . . . "Demonstration of Sowing Maize,"
(S.S. Srivastava).

6:20 P.M. . . . Departure from instructional farm
to class-room.

6:30 P.M. . . . Assemble in class-room.

6:30-6:40 P.M. . . . Tea Break.

6:40 P.M. . . . Departure by bus for Garhi Malian
School (V.C. Kimothi).

DAIRY PRODUCTION COURSE (One day's programme)

7:30 A.M.	. . .	Arrival of farmers at dairy farm.
7:35-8:00 A.M.	. . .	Observe operation of dairy farm.
8:00-8:15 A.M.	. . .	Tea.
8:20 A.M.	. . .	Arrival at Veterinary Hospital.
8:25-9:00 A.M.	. . .	"Advantages of Artificial Insemination," by Dairy Farm Manager.
9:50-10:00 A.M.	. . .	Thanks by Agriculture Teacher.
10:05 A.M.	. . .	Departure of farmers.

FODDER PRODUCTION COURSE (One day's programme)

3:00 P.M.	. . .	Assembly in the hall.
3:15-3:30 P.M.	. . .	"Objectives of the Programme," (By agriculture teacher).
3:30-3:45 P.M.	. . .	"Practical Tips on Growing Hybrid Napier Grass," (By agriculture teacher).
3:45-4:00 P.M.	. . .	Departure from assembly hall to demonstration plot on school farm.
4:00-4:30 P.M.	. . .	"Demonstration of Planting Hybrid Napier Grass," (By agriculture teacher).
4:30-5:00 P.M.	. . .	Tea in assembly hall.
5:00-5:10 P.M.	. . .	"Importance of Hybrid Napier Grass as Fodder," (By District Animal Husbandry Officer).
5:10-5:30 P.M.	. . .	Questions and answers.
5:30-5:35 P.M.	. . .	Thanks by Headmaster.
5:45 P.M.	. . .	Departure.

PLANNING PHYSICAL FACILITIES FOR THE SCHOOL AGRICULTURE DEPARTMENT

Committee No. 8:

M. V. Yesurathnam
Mathura Prasad
G. P. Verma
K. P. Sharma
L. C. Chaudhary

Consultant:

M. G. Kelkar

This is the Purpose

Modern vocational education in agriculture demands an educational environment of practical working conditions and equipment conducive to acquiring new skills in agriculture necessary for gainful employment. The classroom with its seating arrangements, black-board, desks and cabinets, the farm with its implements and tools, livestock buildings, the farm workshop with all the required tools, etc., are all a part of physical facilities of a number, quality, and suitability to the school as a whole. Due to the nature of the educational objectives of agriculture, the facilities required are more numerous and expensive than those required by most other secondary school streams. No. school should therefore attempt to add agricultural streams unless adequate facilities can be provided for effective learning.

The committee has before it the following objectives:-

1. To emphasize the importance of adequate physical facilities for carrying out a sound agricultural education programme at the secondary school.
2. To suggest a list of some minimum requirements for different areas (Poultry, Dairy and Dairy laboratory, Agronomy Laboratory and Agricultural Meteorological Laboratory, fruit preservation equipment, etc.) that is basic for teaching agriculture effectively.

3. To suggest ways and means by which the agricultural teacher may plan and organize facilities for the school agricultural department.
4. To give some idea of expenditure that may be necessary for purchasing the physical facilities.

This is the Situation

1. A great majority of secondary schools having agricultural streams do not have adequate physical facilities for teaching agriculture. This is because of:
 - a. Lack of adequate budgetary provisions for their purchase.
 - b. Lack of adequate knowledge on the part of the agricultural teacher of the kind of facilities required for different areas.
 - c. Lack of adequate knowledge of the sources from where the facilities could be purchased.
 - d. Non-availability of appropriate equipment in the local market.
2. Lack of appreciation of the importance of adequate physical facilities on the part of the school administrators.
3. Tendency on the part of the school administrators to neglect provision of adequate physical facilities because of insufficient number of students enrolling in agriculture.

This we can Do

1. Develop a list of minimum equipment and tools of appropriate size, grade and number for each of the areas in agriculture.
2. Submit the list of the requirements in the departmental budget proposals.

3. Fix purchase priorities: purchase all such equipment and material that would be required for immediate and use; defer purchase of all such equipment that would be required at a later date.
4. The physical facilities for the department should be steadily built up, spread over some years depending upon the requirements and the budget allocations.
5. Catalogues from firms dealing in different items of equipment should be obtained regularly so as to keep posted with their prices.
6. Contacts through communication should also be developed with and assistance sought from agencies/institutions like I.C.A.R., New Delhi; The Farm Information Unit, Directorate of Extension, New Delhi; Directorates of the State departments of Agriculture and the I.A.R.I., New Delhi.
7. Adequate provision should be made for repairs and maintenance of all the equipment, implements and tools.
8. Administrators should be convinced of the utility and importance of each of the facilities purchased by making full use of them (facilities) for instructional purposes.
9. More detailed information concerning physical facilities can be found in the publication: "A Teacher's Guide For Establishing a School Department of Agriculture." This publication can be obtained from the Agricultural Education Department, Regional College of Education, Ajmer.

TRAINING TEACHERS OF AGRICULTURE

Committee No. 9.

R. S. Upadhyaya
G.S. Bansal
U.S. Sisodia
K.T. Ramachandra
R.P. Saini
J.C. Malik
J.P. Sharma

Consultants:

R. P. Singh
Lowell E. Hedges

This is the Purpose

The internship training programme is the foundation of any effective teacher education programme. This is important because the future teacher should receive the experience of being placed in actual classroom and school situations. It is only through internship that he will get the required professional experiences. Therefore, there is a definite need for cooperating schools and cooperating teachers to guide student teachers in obtaining these required professional experiences.

The specific objectives of this committee are:

1. To present the need for and requirements of cooperating schools.
2. To present the need for and requirements of cooperating teachers.
3. To suggest the personal characteristics and teaching skills needed by the student teacher before beginning his internship training at a cooperating school.
4. To suggest the professional experiences the student teacher ought to achieve during internship.

5. To suggest internship supervisory duties for the college staff.
6. To suggest evaluative instruments to be used by student teachers, cooperating teachers and college supervisors.

This is the Situation

Cooperating Schools:

1. Not enough physical facilities for effective teaching are being provided in some of the cooperating schools.
2. Not all of the cooperating schools have trained cooperating teachers.
3. The schools having agriculture do not always have adequate scope in subject matter area.
4. The medium of instruction in some of the schools may differ from that of the student teacher.

Cooperating teacher:

5. The cooperating teachers sometimes do not get enough time to supervise all the lessons of the student teachers.
6. Lessons planned by the student teacher are not always evaluated by the cooperating teachers prior to teaching.
7. The evaluation of the student teacher's job of teaching is not always effectively done by the cooperating teacher and the college supervisor.
8. The cooperating teachers are not provided any remuneration. Therefore, some of them feel it is an extra burden to participate as a cooperating teacher.

9. A large number of cooperating teachers do not always cooperate fully with the student teachers.

Administrators of cooperating schools:

10. The administrators of the cooperating schools do not always get time to participate in the supervision of the student teachers.
11. The student teachers are not always familiarized with present or potential problem areas in the school.
12. The student teachers are not always provided with a suitable timetable for their periods.
13. The cooperating teachers are sometimes allotted extra classes during the periods of their supervision of student teachers. This prevents them from adequately supervising the student teachers.

Student teachers:

14. The student teachers often have difficulties in getting the required reference literature.
15. The student teachers often are not familiarized with the school syllabus before they go for internship training.
16. The student teachers do not always possess enough ability to prepare and use teaching aids.
17. The student teachers are often unable to make effective use of whatever aids the schools possess.
18. Student teachers sometimes lack desirable personal characteristics.

College Supervisors:

19. The college supervisors are sometimes unable to supervise as many lessons as they should.

20. The evaluation following a lesson is not always done properly by cooperating teachers, student teachers and college supervisors collectively.
21. The internship programme is often organized at the time when there are tournaments or half-yearly examinations in the cooperating schools.

This we can Do

Cooperating teachers:

1. The cooperating teacher should plan in advance for internship before the arrival of the student teacher.
2. He should acquaint the student teacher with his fellow teachers, the administrators and the pupils.
3. He should familiarize the student teacher with teaching aids, tools and equipment, the school and departmental libraries and other facilities available in the school.
4. The cooperating teacher should review and correct the lesson plans prepared by the student teacher in advance of actual teaching.
5. He should be punctual and prompt in attending the classes of the student teacher and in evaluating his work.

Administrators of cooperating schools:

6. Effective cooperation and assistance from the administrators should be elicited by holding a conference with the college staff before internship training programme.
7. The administrators should apprise the student teachers with problem areas in the school.

8. The administrators should provide the cooperating teacher with sufficient time to properly supervise the student teachers.

Student teacher:

9. The student teacher should have developed basic skill training in lesson planning, classroom teaching, preparation and use of teaching aids, and how to construct and administer objective type tests prior to internship.
10. With the assistance of the cooperating teacher, the student teacher should plan his schedule of professional experiences for the entire internship period.
11. After completing the first week of internship training, the student teacher should evaluate his personal characteristics. The cooperating teacher should also evaluate the student teacher's personal characteristics. They should then discuss ways and means by which the student teacher can improve his personal characteristics. A suggested evaluation form is appended.
12. A suggested list of professional experiences that a student teacher should obtain during internship training is appended.

College supervisors:

13. The internship training programme should not coincide with vacations, examinations or sport's week.
14. The college supervisors should stay with the student teachers for at least two whole school days during which they may assist in their lesson-planning, attend their classes and evaluate their over-all performance.
15. A detailed list of college supervisory duties is appended.

Evaluation instruments:

16. To effectively assist the student teacher, cooperating teacher and college supervisor in evaluating the internship training received by the student teacher, some suggested evaluative instruments are appended. These evaluative instruments were adapted from those used by The Agricultural Education Department, Ohio State University, U.S.A.

SUGGESTED INTERNSHIP SUPERVISORY DUTIES OF COLLEGE STAFF
Agricultural Education - Regional College of Education, Ajmer

1. The supervisor should first notify the cooperating teacher and the school principal when he plans to visit the trainee.
2. The supervisor should plan his supervisory visit so as to coincide with the teaching schedule of the trainee. It is impossible to properly evaluate the trainee's teaching ability without observing the actual teaching. Sufficient time should be scheduled following the trainee's teaching to permit an evaluation by the trainee, cooperating instructor, and the supervisor.
3. Upon arriving at the school, the supervisor should report to the principal. At this time, a tentative supervisory schedule for the day should be arranged.
4. The supervisor should pursue a systematic approach in evaluating the trainee's teaching. The evaluation form, "For Observation and Analysis of Classroom Teaching," should be used.
5. The supervisor should stress to the trainee and cooperating instructor the importance of having a definite student-teacher plan of experiences. Early in the first week of student teaching the trainee and cooperating teacher should jointly plan the experiences for the internship period. The experiences should include the areas mentioned in the evaluative instrument, "Professional Experiences For Majors in Agricultural Education."
6. The supervisor should also discuss with the trainee and cooperating teacher the progress of the trainee in the areas of the professional experiences list.
7. Before leaving the school, the supervisor should again report to the principal. A brief summary of the evaluation may be discussed with the principal.
8. The supervisor should encourage the cooperating teacher to conduct a mid-internship progress evaluation with the trainee.

9. At the completion of the internship period, the supervisor should encourage the cooperating instructor to prepare a written evaluation of the trainee's performance during the internship period. This written evaluation is to be confidential and for the use of the college departmental staff in determining the total marks for the trainee. Cooperating teacher should use the form, "Student Evaluation Report By Cooperating Teacher."

PROFESSIONAL EXPERIENCES FOR MAJORS IN AGRICULTURAL EDUCATION

Agricultural Education - Regional College of Education, Ajmer

A. Teaching Secondary School Classes	Student Number*	Teaching Rating**
<ol style="list-style-type: none"> 1. Programme of instruction: Plan for each class for the internship period with the cooperating teacher. 2. The syllabus: Discuss current programme of instruction as a part. 3. Trainee schedule of teaching: Develop with cooperating teacher weekly. 4. Prepare complete teaching outlines (lesson plans) two days before each day's teaching in agriculture classes. 5. Prepare for teaching and teach students in agriculture classes. 6. Field trips: Plan and conduct one as part of lesson. 7. Demonstrations: Plan and present. 8. Class evaluation of farm mechanics instruction: Lead the evaluation of at least two projects. 9. Prepare and use at least three different kinds of visual aids. 10. Tests or examinations: Prepare, administer, and grade for teaching units. 11. Determine grades for internship period of the students you taught. 12. Observe the teaching of one other student teacher for at least one class per day. 13. Have experience of filling class register. 		
B. General School		
<ol style="list-style-type: none"> 1. Conference with school administrators: School programme, aims; purpose; policies; and problems. 2. Teachers' meetings attended. 3. Faculty activities attended. 4. School activities attended. 		

*Trainee should record by tally in "Number" column at end of each week all experiences received.

**The rating column is to be completed in terms of "How helpful was the experience in developing my competence and confidence as a successful leader in agricultural education?" Enter appropriate letter: E - Excellent; G - Good; A - Average; F - Fair; P - Poor.

		Student Teaching	
		Number*	Rating**
5. Observe primary classes one-half day (if possible). 6. Observe secondary classes one-half day. 7. Headmaster conference regarding procedure of applying for position. 8. Teach high school classes in other subjects if student teacher is qualified in this subject. 9. Experience in using relieving and joining certificate.			
C. Guidance and Counseling			
1. Conference with the cooperating teacher and/or Headmaster on school guidance programme, policies, and problems. 2. Discuss role of the teacher in guidance. 3. Prepare and discuss with the cooperating teacher a brief report of the case study of one student based on the following: a. Analyse cumulative records of agriculture student. b. Follow one student through each of his classes. c. Guide a student in self-evaluation: Consider performance in course, activities, individual problems, class behavior, attitude, and personality development. 4. Hold a conference with a student concerning his vocational future. 5. Hold a conference with the parents of at least one student.			
D. Physical Facilities			
1. Index and file reference material. 2. Discuss with cooperating instructor the inventory of each of these departmental facilities: Reference books Reference bulletins Teaching aids Tools and equipment Apparatus and equipment Resource units			

		Student Teaching	
		Number*	Rating**
3.	Prepare a written evaluation of the departmental facilities for cooperating teacher.		
4.	Experience in budgeting for the future needs of physical facilities with cooperating teacher.		
5.	Long-term budgeting for physical facilities of department with cooperating teacher.		
6.	Experience in development of school farm.		
E. Community and Public Relations			
1.	Prepare at least one news article concerning departmental activity.		
2.	Prepare an exhibit or display concerning departmental activities		
F. Conducting FFI Activities			
1.	Attend all the meetings.		
2.	Assist at least one permanent committee.		
3.	Prepare one recreational activity for each meeting.		
4.	Work with one officer.		
G. Conducting Adult Farmer Education Programmes			
1.	Assist cooperating teacher in planning at least one adult farmer education programme.		
2.	Assist teacher in conducting at least one demonstration.		
3.	Conduct class follow-up on at least two farms.		
H. Supervision of Home Projects			
1.	Help at least one student begin a home project.		
2.	Supervise at least two home projects.		
3.	Summarize and analyze at least one home project record book.		

Student

AN EVALUATION OF MY TEACHER TRAITS
 Agricultural Education - Regional College of Education, Ajmer

I. PERSONAL CHARACTERISTICS

E G A F P*

- | | |
|-------|------------------------|
| ..... | Sincerity |
| ..... | Initiative |
| ..... | Enthusiasm |
| ..... | Poise |
| ..... | Tact |
| ..... | Firmness--Convictions |
| ..... | Ability to meet people |
| ..... | Promptness |
| ..... | Cooperativeness |
| ..... | Self-confidence |
| ..... | Sense of humor |
| ..... | Maturity |
| ..... | Voice |
| ..... | Appearance |
| ..... | Moral habits |
| ..... | Health |

II. GENERAL

- | | |
|-------|---|
| ..... | Community participation |
| ..... | Ability to plan a total programme of vocational agriculture |
| ..... | General school participation |

III. ADULT FARMER TEACHING

E G A F P*

- | | |
|-------|-------------------------------------|
| ..... | Enroll students |
| ..... | Organize the teaching programme |
| ..... | Teach in the classroom |
| ..... | Teach on the farm |
| ..... | Follow up the teaching on the farms |

IV. TEACHING AND FOLLOW-UP OF SECONDARY SCHOOL STUDENTS

Ability to:

- | | |
|-------|---|
| ..... | Recognize farm problems |
| ..... | Organize teaching around boy problems. |
| ..... | Arouse and maintain interest |
| ..... | Use appropriate questions |
| ..... | Use appropriate visual aids effectively |
| ..... | Apply technical information |
| ..... | Use farm experience |
| ..... | Maintain discipline |
| ..... | Use correct words in speaking |
| ..... | Use correct grammar in writing |
| ..... | Guide students to arrive at sound conclusions |

***Scale:** E - Excellent; G - Good; A - Average; F - Fair; P - Poor.
 Circle dot in appropriate column.

IV. (Continued)

E G A F P

- | | |
|-----------|--|
| | Get boys to write good plans of practice |
| | Get boys to keep good project records |
| | Get boys to put into practice the findings made in class |
| | Secure additions to home project programmes |
| | Have boys select farm mechanics projects |
| | Have boys do quality farm mechanics work |
| | Advise the F.F.I. |
| | Lead recreational activities |

V. PROFESSIONAL EVALUATION

E G A F P

- | | |
|-----------|--|
| | Attitude toward teaching |
| | Prospects as a teacher |
| | Degree of improvement |
| | Over-all evaluation at mid-period |
| | Over-all evaluation at end of internship |

FOR OBSERVATION AND ANALYSIS OF CLASSROOM TEACHING
Agricultural Education - Regional College of Education, Ajmer

Teacher _____ Class _____ Date _____ Observer _____

		Rating*					Observer's Comments
<u>Lesson Preparation</u>		E	G	A	F	P	
1.	The teacher has visited boy's home farm and is familiar with the situation.	.	.	.	.	.
2.	Teacher has objectives and a written plan. The purposes of lessons are clear.	.	.	.	.	.
3.	Class and/or boy's problem identified. Situation clear -- approved by cooperating teacher.	.	.	.	.	.
<u>Teaching of Lesson to Class</u>							
1.	Teacher develops feeling of need for lesson and students express desire for discussion.	.	.	.	.	.
2.	A realistic problem is stated on chalkboard after evidence of need is developed. Problem:	.	.	.	.	.
3.	A specific situation is used.	.	.	.	.	.
4.	Adequate possibilities are developed	.	.	.	.	.
5.	All important items are considered.	.	.	.	.	.

*Scale: E - Excellent; G - Good; A - Average; F - Fair; P - Poor.

		Rating					Observer's Comments
		E	G	A	F	P	
6.	Facts used are reliable and adequate.	.	.	.	.	.
7.	Evaluation of facts is made.	.	.	.	.	.
8.	Conclusion to the problem:	.	.	.	.	.
9.	Application is made to other situations. Important learnings are emphasized.	.	.	.	.	.

Curve of class interest.

Excellent							
Good							
Average							
Fair							
Poor							
	Start	15 min.	30 min.	45 min.	60 min.	75 min.	90 min.

<u>Some Essentials of Good Teaching</u>		<u>Rating</u>					<u>Observer's Comments</u>
		<u>E</u>	<u>G</u>	<u>A</u>	<u>F</u>	<u>P</u>	
The Lesson	1. Purposes of lesson were shared with students.	.	.	.	.	.
	2. Lesson was begun where students actually are in relation to problem	.	.	.	.	.
	3. All students were motivated with relevance to lesson.	.	.	.	.	.
	4. Lesson related to present and future needs of student.	.	.	.	.	.
The Material	5. Visual aids and references used were adequately explained	.	.	.	.	.
	6. Material clearly and logically placed on chalkboard.	.	.	.	.	.
	7. Facts used were reliable and adequate.	.	.	.	.	.
	8. Evaluation of facts was made.	.	.	.	.	.
	9. Physical facilities were adequate.	.	.	.	.	.
	10. Contributions of the students were heeded and built upon.	.	.	.	.	.
The Students	11. Class time was efficiently used.	.	.	.	.	.
	12. Class study and assignments were adequate.	.	.	.	.	.
	13. Students' answers were evaluated by other class members.	.	.	.	.	.
The Teacher	14. Teacher demonstrated knowledge of subject.	.	.	.	.	.
	15. Teacher used firmness, discipline and tact.	.	.	.	.	.
	16. Teacher developed good thinking and understanding.	.	.	.	.	.
	17. Teacher's questions were challenging.	.	.	.	.	.
	18. Teacher shows graciousness and sympathy with students' efforts.	.	.	.	.	.
	19. Teacher did not exhibit annoying habits such as juggling chalk, stuttering, pacing, etc.	.	.	.	.	.
	<u>Follow-up of Classroom Teaching</u>						
	1. A summarized plan of practice was written by students.	.	.	.	.	.
	2. Teacher plans follow-up through individual on-farm instruction.	.	.	.	.	.
	FINAL RATING	.	.	.	.	.

STUDENT EVALUATION REPORT BY COOPERATING TEACHER
Agricultural Education - Regional College of Education, Ajmer

Student _____ Suggested Grade _____

Date: _____ (Check) Pre-Internship _____
 Internship _____

Cooperating Teacher _____

Indicate your evaluation of the student's performance by encircling the appropriate letter of each scale and give specific reasons for your ratings. Be certain to consider the demonstrated abilities of the student as well as your evaluation of his strengths and weaknesses.

Scale*

I. PERSONAL CHARACTERISTICS.

E G A F P

**II. TEACHING OF HIGHER SECONDARY SCHOOL BOYS
 IN THE CLASSROOM AND ON THE FARM - Include
 planning and conducting classes in Agriculture and
 Farm Shop.**

E G A F P

*Scale: E - Excellent; G - Good; A - Average; F - Fair; P - Poor.

Scale

III. ABILITY TO DEVELOP FARMING PROGRAMS -
Include planning, record keeping, and on-the-farm
teaching.

E G A F P

IV. ABILITY AS AN ADVISOR OF THE F.F.I.

E G A F P

V. ABILITY TO ORGANIZE AND CONDUCT CLASSES
IN-ADULT EDUCATION - Including classroom and
on-the-farm teaching.

E G A F P

VI. PARTICIPATION IN SCHOOL AND COMMUNITY
ACTIVITIES.

E G A F P

VII. PARTICIPATION IN CO-CURRICULAR ACTIVITIES.

E G A F P

VIII. PROBABLE SUCCESS AS A TEACHER OF
VOCATIONAL AGRICULTURE.

E G A F P

A GUIDE FOR EVALUATING DEMONSTRATIONS IN FARM MECHANICS

Agricultural Education - Regional College of Education, Ajmer

A. Preparation

1. Was the job divided into logical steps?
2. Were important points stressed?
3. Were notes used appropriately?
4. Were all tools, materials, supplies, and teaching aids available?

B. Motivation

1. Was the students' knowledge of the job known?
2. Was the importance of the job developed?
3. Were applications of the demonstrations related to the students' present knowledge and future use?
4. Was a high level of interest developed?
5. Were the students made aware of the important points?

C. Teaching on the Job

1. Were new terms, parts, and functions emphasized?
2. Was only one step at a time demonstrated?
3. Was each step demonstrated in proper sequence?
4. Were questions asked to determine student understanding?
5. Were safety precautions discussed and followed?
6. Were audio-visual aids used appropriately?

7. Could students see and hear clearly at all times ?
8. Was the amount of time for the demonstration reasonable for securing student understanding ?
9. Were students used to repeat some steps to check understanding ?
10. Were the key points summarized by or with the students ?

D. Student Practice

1. Was there opportunity for student application immediately after the demonstration ?
2. Were correct work habits developed ?
3. Were steps repeated to assure understanding necessary for slower students ?
4. Did the students evaluate their work with the instructor ?
5. Were students supervised in practice ?

EVALUATION OF ON-THE -FARM VISITS

Agricultural Education - Regional College of Education, Ajmer

Name of Trainee _____ Date _____

	Yes	No	Comments
1. Conferred with the student prior to visit.			
2. Reviewed with the teacher the students home situation and farming program and identified items to check on prior to visit.			
3. Made appointment for time of visit.			
4. Observed all projects in the students farming programme.			
5. Recorded information concerning the visit for future reference.			
6. Noted progress made by the student since last visit.			
7. Discussed the student's farming programme with at least one of the parents.			
8. Discussed farm mechanics project possibilities or activities with the student and parent.			
9. Assisted student in developing a skill, such as, docking, castrating, or sowing seed.			
10. Checked a project for efficiency, such as weighing feed and animals.			
11. Discussed possible changes in or additions to the student's farming programmes.			
12. Discussed the student's programme in vocational agriculture and other school activities with parents.			
13. Developed a better understanding of the student and his home situation.			
14. Checked for problems to use in classroom teaching.			
15. Checked for sources of or secured teaching aids.			
16. Checked on ways of assisting the parents, young farmers, or adult farmers with farm problems.			
17. Observed professional ethics at all times.			

A GUIDE FOR EVALUATING FIELD TRIPS IN VOCATIONAL AGRICULTURE

Agricultural Education - Regional College of Education, Ajmer

Place Visited _____ Date _____
 Purpose of the Trip _____ Trainee _____

	Yes	No	Comments
1. Purpose of the trip was clear and definite.			
2. The trip contributed to classwork underway or to follow.			
3. Members of the class assisted in developing questions to be asked and observations to be made.			
4. Assignment of student responsibilities was made in advance.			
5. Previous arrangements were made at the farm or place to be visited.			
6. Arrangements for transportation were carefully made in advance.			
7. Arrangements were made with school administration in advance.			
8. Students were under teacher direction and control at all times.			
9. A high degree of student interest was shown at all times.			
10. Students made appropriate notations and observations.			
11. Proper courtesies were shown to persons at the places visited.			
12. The trip was concluded within the allotted time.			
13. Students participated in evaluating the trip.			
14. Students summarized the trip and made appropriate conclusions.			
15. Trip contributed to improved farming programmes through learning and applying new skills and increasing knowledge.			
16. Safety rules were observed.			

A GUIDE FOR EVALUATING A FARM MECHANICS CLASS
Agricultural Education - Regional College of Education, Ajmer

Name of Trainee _____ Date _____

1. Farm mechanics activities for the day were jointly planned by the students and instructor before starting work.
2. A minimum of time was required for students to start work.
3. Students were appropriately dressed.
4. Students were engaged in worthwhile activities throughout the class period.
5. Students seemed interested and took pride in their work.
6. Tools were correctly used.
7. Safety precautions were observed at all times.
8. Students refrained from loud talking, whistling, or other unnecessary disturbances.
9. Each student was given adequate supervision during the period.
10. Demonstrations were as needed.
11. Students cleaned and returned tools to proper places at end of period.
12. Students marked and put in a safe place all work at end of period.
13. Each student assumed definite responsibility in cleaning the shop and leaving things in order.
14. The shop was clean and everything in order at the end of period.
15. Tools were checked to see that they were in place at the end of the period.
16. Students and instructor evaluated progress.
17. Students completed clean-up and were excused on time.

POULTRY PRODUCTION

Committee No. 10:

M.V. Yesurathnam
K.P. Sharma
Mathura Prasad
G.P. Varma
Lakshmichand Chaudhary

Consultant:

S.S. Srivastava

This is the Purpose

Today there is an increasing demand for poultry products in India. Many people have started taking eggs and meat in their diet. In view of this, due importance is now being given to this subject as a part of the training programmes in our Secondary Schools.

Most of the agriculture teachers serving in secondary schools do not have enough background in poultry management to make instruction effective to their pupils. They do not possess even the requisite qualifications to fulfil their duties. Training programmes for agriculture teachers of secondary schools in sound management practices of poultry farming has assumed special significance in the context of supplementing the food requirements of our country.

Objectives of the Committee:

1. To emphasize the needs for increasing poultry production.
2. To present the problems that the farmers have in developing the poultry programme as a part of their farming operations.
3. To present ways and means by which teachers of agriculture serving in secondary schools can assist farmers in solving their problems in increasing poultry production in India.

This is the Situation

1. Most farmers do not appreciate the importance of having poultry products in their diet.
2. Farmers attitudes towards poultry farming are far from encouraging.
3. The farmers are not always adopting improved practices in poultry management.
4. Farmers do not have enough information about importance and quality of the poultry manure for their crop production.
5. In most parts of the year the farmers and their family members remain idle. There is no productive past-time for them during their leisure time.
6. The annual per capita consumption of poultry meat in India is 0.29 lbs. against 29.31 lbs. in U.S.A. and 5.5. to 13.3.lbs. in European countries.
7. The laying capacity of Indian birds is very poor. (Average of 60 eggs per birds per year as compared to the world average of 130 eggs per bird per annum).
8. The target of the fourth five-year plan is to produce 50 eggs per capita per annum for 50% of the total population.

This we can Do

1. The teacher can help develop in the farmers an acceptable attitude towards poultry production by organizing training programmes.
2. The teacher can provide information to farmers on how to get more returns from their limited resources.
3. The teacher can help the farmers develop abilities and skills in the construction of suitable and inexpensive houses.

4. The teacher can assist the farmer in developing the ability to choose suitable breeds according to the needs of the community/situation.
5. The teacher can demonstrate how to prepare balanced poultry rations from the inexpensive products available in the area.
6. The teacher can provide training to the farmers so that they can develop the following skills:-
 - a. Procuring and rearing day old chicks.
 - b. Using improved management practices for starters, growers and layers.
 - c. Vaccinating the birds against Ranikhet and Fowl Pox diseases at suitable times.
 - d. Identifying the diseased birds and administration of the medicines as preventive and curative measures.
 - e. Debeaking against cannibalism.
 - f. Culling of nonlayers.
 - g. How to grade, clean, store and market poultry products.
7. Some of the technical information prepared in the Department of Agricultural Education, Regional College of Education, Ajmer, about the sound management practices of poultry farming is included in the publication, "Approved Practices In Indian Poultry Production." This publication will be available from the Regional College of Education, Ajmer.

CROP PRODUCTION

Committee No. 11:

U.P.S. Sisodia
R.N. Adak
M.S. Tomar
P.C. Jain
V.K. Garg

Consultant:

R.P. Singh

This is the Purpose

For the present population of India we require annually about 100 million tons of food grains. At present we are producing about 80 million tons of food grains and the rest (20 million tons) is being imported from foreign countries. In the Fourth Five Year Plan due emphasis has been placed on agricultural programmes.

The food grains deficit can be partially removed by the use of high yielding varieties. There are certain varieties which have been evolved for high production. They have the potentialities of producing 3-4 times more in comparison to the old varieties grown. The Government of India has fixed a target of growing these improved varieties on an area of at least 32.5 million acres. These varieties should be grown at places where inputs like irrigation, fertilizers, etc., are available.

The following are the objectives of this committee:

1. To present the need for farmers to use new crop varieties.
2. To present the problems farmers face in increasing crop yields.
3. To present some problems teachers have in teaching crop production.
4. To suggest ways and means by which teachers can improve their instruction in crop production.

5. To present up-to-date information on crop production that teachers may use in their teaching.
6. To stimulate teachers of agriculture to keep their knowledge up-to-date.

This is the Situation

1. Many teachers do not have authentic and up-to-date literature on crop production and as such they have to depend on out-dated text books.
2. Seeds of new promising varieties of crops are not always available to the agriculture teachers.
3. Very few teachers are acquainted with the latest approved agronomic practices.
4. Not enough agricultural magazines and journals are being subscribed to by the schools.
5. Not enough in-service training educational programmes are being organized for agriculture teachers.
6. Agriculture teachers are not being deputed to seminars and workshops relating to their field.
7. Present-day graduate programmes in agriculture do not provide adequate training in skills like seed treatment, spraying and dusting, etc.
8. The fertilizers, fungicides, insecticides, herbicides, etc., are not always available at the proper time.
9. The plant protection personnel and other extension staff do not always cooperate with the agriculture teachers in carrying out farm practices on approved lines.
10. The courses prescribed on crop production in the Higher Secondary School Syllabus are mostly theoretical and do not give enough practical skills.
11. Courses in crop production are not always based on the main crop enterprises in the locality.

12. In certain cases, the schedule for programmes of instruction is being guided by the Directorate of Education. This procedure does not always synchronise programmes with the time of cultivation of particular crop.
13. Each crop is generally taught as a unit irrespective of any variety deserving special agronomical practices. Changing times demand that approved agronomical practices should be taught in relation to a specific variety of a crop.
14. Agriculture teachers sometimes face difficulties in scheduling practicals in the school time table.

This we can Do

1. The teachers of agriculture should obtain authentic, inexpensive and free literature on crop production from the following sources:-
 - a. Directorate of Extension, Ministry of Food and Agriculture, 4-B, Jangpura, New Delhi.
 - b. Indian Council of Agricultural Research, Krishi Bhavan, Dr. Rajendra Prasad Road, New Delhi.
 - c. Head of Agricultural Extension, I.A.R.I., New Delhi.
 - d. National Seeds Corporation, 4 West Patel Nagar, New Delhi
 - e. Fertilizer Association of India, 85 Sunder Nagar, New Delhi-11.
 - f. Japan Urea Centre, Rajendra Nagar, New Delhi
 - g. State Departments of Agriculture.
 - h. Agricultural Universities (Pant Nagar, Ludhiana, Udaipur etc.).

- i. Central Research Stations of the country.
 - j. Manufacturing firms of pesticides, fungicides, herbicides, etc.
2. The teachers of agriculture should subscribe to some of the following journals which are not costly:
 - a. Indian Farming (Rs.10.00)
 - b. Indian Horticulture (Rs.4.00)
 - c. Intensive Agriculture (Rs.5.50)
 - d. Progressive Farming (Rs.3.00)
 - e. Unnat Krishi (Rs.6.00)
3. The Departments of Education may be requested to subscribe to monthly and quarterly journals on agriculture for the school library.
4. The teachers of agriculture may obtain new strains of seeds from National Seeds Corporation, New Delhi and other Extension Agencies in the form of samples for demonstrations.
5. The students of agriculture may be allotted individual plots on school farms to develop practical skills in crop production.
6. Proper accounts of each crop should be maintained and economics should be worked out to motivate the students and farmers to do the job of crop production more scientifically.
7. The teachers should encourage and assist students to start home projects on crop and vegetable production.
8. The teacher of agriculture should maintain samples of seeds of crops grown in the locality so as to encourage the students and farmers to see and adopt approved agronomical practices on their farms.

9. The teacher should include instruction in up-to-date crop production practices in the Adult Farmer Education Programme.
10. Information on improved practices in crop production may be obtained from the Department of Agricultural Education, Regional College of Education, Ajmer.

FARM MANAGEMENT

Committee No. 12:

T.C. Bose
D.V.S. Malik
Y.P. Singh
S.P. Singh
R.R.P. Singh
S.M. Jain

Consultants:

Virendra Kumar
R.P. Singh
M.G. Kelkar

This is the Purpose

Farm Management is a field of recurring expansion and rapid advancement. It is an important area of instruction included in the curriculum of agricultural schools all over the world. In India, agricultural students who mostly inherit farm lands do not find interest in farm management study.

Even the school dropouts are reluctant to go back to the land to help their parents. This action results in a huge wastage of human resources. The teachers of agriculture are challenged by the success achieved by other nations in the field of farm management. Presently our teachers are mainly emphasising content areas related to the prescribed curriculum. But will it solve the problem of how to teach a farmer to wisely manage his farm?

Therefore the purposes of this committee's report are:

1. To present before the educators and administrators the need for finding out a teaching process in farm management based on production economics.
2. To suggest an instructional programme in farm management for teachers of agriculture.

This is the Situation

1. Farm Management, one of the most important instructional areas in the programme in agriculture, has not received the emphasis in the Higher Secondary School syllabus that it should.
2. Most of the schools do not possess economical farm holdings that operate in the locality.
3. Some school farms are located at an inconvenient distance from the school.
4. Some farms are not efficiently laid out and irrigation and drainage facilities do not always exist.
5. In some states, Farm Superintendents operate the school farms and they do not always cooperate with the agriculture teachers in using the farm for educational purposes.
6. Some school farms do not maintain farm records properly.
7. The school libraries of many schools lack farm management books and pamphlets.
8. In the absence of a comprehensive plan and programme in vocational agriculture, supervised farm projects, home projects in agriculture, adult farmer education in agriculture and the smooth flow of scientific farm management practices are not channelised from agricultural schools into the farmer's home. There is little appreciable and desirable change in agricultural practices.
9. Farmers think of agriculture as a way of life and not in terms of a business.
10. Students of agriculture do not know how to attain maximum profits from the standard size farm holdings of the locality. They do not learn the technique of managing all farm land of different size holdings.

11. Students are not aware of economical roles played by all factors of production, e.g. land, labour, capital and management in different stages of agricultural production.
12. The march of science should bring about rapid revolution in agriculture. The school farms, illequipped with outdated tools and implements, fail to make the needed impact on the community.
13. Agriculture teachers are not trained in the new methods of farm management.
14. Neither the school farms nor the agricultural farms of the area have their soil tested because of the absence of any organised agency to help them.
15. Most of the school farms do not follow an aconomical cropping scheme. This leaves a bad impression on the pupils and the local farmers.
16. Some farms hire unskilled labourers.

This we can Do

1. The agriculture teachers should formulate a new syllabus of agriculture where farm management must secure its proper position.
2. Uneconomical and scattered school farm holdings should be consolidated into a big holding..
3. School farms should be efficiently laid out and adequate provisions for irrigation and drainage should be made.
4. Solution to the question, "How to get farm superintendents to cooperate?" is in their active participation in the school teaching. They should take practical classes in agronomy.
5. Until self-sufficient, the school library should borrow books on farm management from the district agricultural library.

6. All fields of agricultural education, e.g. school agriculture, vocational agriculture, adult farmer education in agriculture, etc., should be bridged up with a common unitary organisation.
7. Teach students and farmers the know-how of the production economics and its maintenance. Principles of budgeting should be followed on the school farm.
8. The agriculture teachers should develop the ability in the students to utilise effectively all farm holdings of variable sizes that they hold so that maximum profit can be earned from them.
9. Through a perfect farm management teaching process they should make the student understand completely the economical roles played by all factors of production, e.g., land, labour, capital and management in different stages of production.
10. They should create interest and strengthen the mind of all students so that they may become future successful tillers of the soil.
11. They should replace outdated and old tools and implements with new ones. An agricultural exhibition each year should be organized.
12. They should purchase a portable and rapid soil testing kit.
13. They ought to affiliate themselves with an organized research agency like Indian Agricultural Research Institute. The research institute should be able to solve all problems concerning farm management, including formulation of suitable cropping schemes.
14. Unskilled labourers should be replaced by some skilled labourers.
15. Some technical data concerning farm management that will be of assistance to teachers is presented below.

COST OF CULTIVATION OF WHEAT (Sample Crop Enterprise Budget)

Cost in Rupees

1. Land revenue - Rs.5.00 @ 10.00 per annum 10.00

2. Land preparation:

Deep ploughing: 2 days, 1 pair
+ 2 men 16.00

3 shallow ploughings: 3 pairs of
bullocks + 3 men 24.00

2 barrowings: 1 pair and 1 man 8.00

2 cultivations: 1 pair and 1 man 8.00

5 plankings: 2 pairs and 2 men 16.00

2 rollings: 2 pair and 2 men 16.00

TOTAL: 88.00

3. Seed Sowing:

Seed: 40 Kgs. Sonora 64 @ 1.22/Kg. 48.80

Seed treatment: Agrosan G.N. +1/2
labour (2.00)

(1.00)

Seeding cost: 1 pair and 2 men 10.00

Ridge making: 1 man 2.00

TOTAL 63.80

4. Manure and Manuring:

Ammonia sulphate 230 Kgs.
@ Rs.41.60/bag of 100 Kgs. 95.60

Super phosphate: 113 Kgs. @
0.38 np/Kg. 44.84

Muriate of potash: 25 Kgs.

@ 0.43 np/Kg.

10.75

Mixing fertilisers

7.00

TOTAL: 158.19

5. Irrigation: 6 irrigations @ 15.00

90.00

labourers @ 2.00 each

12.00

TOTAL: 102.00

6. Hoeing and weeding: 2 hoeings:

10 men @ 2.00

20.00

7. Roguing: 2 men

4.00

8. Insecticides & pesticides: 2 men

10.00

9. Harvesting: 10 men

40.00

10. Hauling: 1 boggi and 2 men

10.00

11. Threshing @ Rs.1.25 per md. for 45 mds.
(power threshing)

56.25

12. Filling in bags: 3 men

12.00

13. Transportation: Grain and Bhusa - 2 men,
one boggi for one day

10.00

14. Miscellaneous: Supervision, etc.

25.00

15. Interest

36.29

TOTAL: 645.53

Gross Income: 1. Grain-45 mds. @ Rs.40.00
per maund

Rs.1,800.00

2. Bhusa-45 mds. @ Rs.6.00
per maund

Rs. 270.00

Rs.2,070.00

Net Income: Rs.2,070.00-645.53 = 1,424.47

Cost of production of 1 Kg. of wheat = 0.35 paisa

DAILY SCHEDULESUMMER INSTITUTE IN AGRICULTURE
Regional College of Education, Ajmer.

Theme: "Training Today's Teachers For Tomorrow's Agriculture"

Date	8:30-10:15	10:30-12:00	3:00-4:15	4:30-5:00	Evening
May 1		Registration of Participants - Room # 50	Welcome: J. K. Shukla, Principal, Objectives of Inst. (R. P. Singh)	Inaugural Address: Dr. W. F. Schroeder Intro. of Guests: at tea, 5:30 P. M.	
May 2	Needs of Today's Teachers of Agri. and How they Relate to the Institute (R. P. Singh)	Home Projects in Agriculture (S. P. Singh)	Home Projects: Discussion and Questions (S. P. Singh)	Home Projects Visitation (S. P. Singh)	
May 3	Home Projects: Selection and Development (S. P. Singh)	Committee Work: Listing of Home Projects Adaptable To India (S. P. Singh)	Finalization of Committee Work on Home Projects (S. P. Singh)	Introduction to Enterprise Records- Goals and Objectives (D. C. Sharp)	
May 4	Home Project Enterprises: Budgeting (D. C. Sharp)	Break -	Finalization of Committee Work on Budgets (D. C. Sharp)	Committee Work on Enterprise Agreements - (D. C. Sharp)	
May 5	Enterprise Inventories, Labour and Machinery Costs (D. C. Sharp)	Tea	Lunch -	Finalization of work on Enterprise Records. (D. C. Sharp)	
May 6	Crop Production (M. P. Phatnagar, J. D. A., Rajasthan)				

	8:30-10:15	10:30-12:00	3:00-4:15	4:30-5:30	Evening
8	Annual Programme of Instruction - Importance and Preparation (S.P. Singh & Kimothi)	Annual Programme of Instruction - Discussion and Individual work (S.P. Singh & Kimothi)	Annual Programme of Instruction - Individual work (S.P. Singh and V.C. Kimothi)	(Continued)	
9	Annual Programme of Instruction - (Cont.) (S.P. Singh and V.C. Kimothi)	(Continued)	(Continued)	Finalization of Annual Programmes of Instructions. (S.P. Singh and V.C. Kimothi)	
10	Analysis of Types of Lesson Plans or Teaching Methods (L.E. Hedges & S.S. Srivastava)	Analysis of Problem-Solving Type of Lesson (L.E. Hedges & S.S. Srivastava)	Discussion of Format For Lesson Plan. (L.E. Hedges & S.S. Srivastava)	(Continued)	Dinner
11	1. Need and Scope for Poultry in India. 2. Establishing a Poultry Unit (S.S.S)	3. Approved Practices for Rearing chicks. 4. Management of Growers & Layers (S.S. Srivastava)	Skill Development a. Culling b. Mixing Feed c. Debeaking (S.S. Srivastava)	(Continued) (S.S. Srivastava)	
12	Field	Trip	University, Udaipur	(Poultry Management) (S.S. Srivastava)	
13	"	"	"	"	

Date	8:30-10:15	10:30-12:00	3:00-4:15	4:30-5:30	Evening
May 15	Preparation of four sample plans by committees. (L.E. Hedges & S.S. Srivastava)	Continued	Continued	Continued	Film Shows 8:15 P.M. - 9:15 P.M.
May 16	Teaching Aids (M.G.K.)	Continued	Test & Testing (R.P. Singh & L.E. Hedges)	Continued	
May 17	FIELD S.S. Srivastava	TRIP M.G.K.	TO L.E. Hedges	JOBNER (Fruit Preservation)	
May 18	"	"	"	"	
May 19	"	"	"	L.A.R.I., New Delhi	
May 20	"	"	"	"	

8:30-10:15		10:30-12:00	3:00-4:15	4:30-5:30	Evening
arm mechanics L.G.K. & E.J.)		Continued	Continued	Continued	Film Shows 8:15 P.M. 9:15 P.M.
- Do -	10:30 A.M.	Continued	Continued	Continued	
- Do -	10:15 -	Continued	Continued	Continued	
Farm Management (MGK & RPS)	Break	Continued	Continued	Continued	
- Do -	Tea	Continued	Continued	Continued	
Dr. Ranbir Singh, S.S. C.O., "Soil Conservation"	3h. K.M. Mehta, Project Director "Soils in Relation to Crop Production"	Lunch	Continued	Tea	

Date	8:30-10:15	10:30-12:00	3:00-4:15	4:30-5:30	Evening
May 29	Crop Production (Pusa Giant Napier Hybrid) (R. P. S.)	Improved Agronomy- ic Practices for Growing Fodder Crops (R. P. S.)	Cereals and Millets (M. P. B.)	Cereals and Millets (M. P. B.)	Film
May 30	Improved Agronomy- ic Practices for growing Sugar- cane (N. Mukerji)	Improved Agronomy- ic Practices for growing Sugar- cane (N. Mukerji)	Improved Agronomy- ic Practices for Vegetables (RPS)	Improved Agronomy- ic Practices for Vegetables (RPS)	Shows
May 31	F. F. I. (V. C. K. and S. P. S.)	Continued	Continued	Continued	N 8:15 P. M.
June 1	Adult Farmer Education Progra- mme. (VCK, SPS, LEH, MGK, RPS and SSS)	Continued	Continued	Continued	N To
June 2	- do -	Tea	Lunch	Tea	N 9:15 P. M.
June 3	Adult Farmer Education Evalua- tion (VCK, SPS, LEH, RPS and MGK)	Continued	Continued	Continued	N
June 4	Committee	on	Terminal	Programme	will meet.

Date	8:30-10:15	10:30-12:00	3:00-4:15	4:30-5:30	Evening
June 5	Cooperating Schools and Teachers (RPS and LEH)	Continued	Continued	Continued	Film Shows
June 6	Cooperating Schools and Teachers (RPS and LEH)	Continued	Vocational Programme in Agriculture (RPS & LEH)	Continued	
June 7	Physical Facilities for School Agr. Deptt. (MCK)	Continued	Continued	Continued	
June 8	Physical Facilities for School Agr. Deptt. (MCK)	Continued	Continued	Continued	
June 9	Completion of Assignments and Evaluation	Continued	Continued	Continued	
June 10	VALEDICTORY	ADDRESS	BY CHIEF	GUEST	

**SUMMER INSTITUTE IN AGRICULTURE,
Regional College of Education, Ajmer.**

Programme of Screening Films and Film Strips for the Participants of Summer Institute
in Agriculture for the Fortnight from 2nd May to 14th May, 1967

Place of Screening: Agronomy Laboratory-cum-Seminar room (Deptt. of Agriculture)
Screening Time: 8.15 P.M. to 9.15 P.M.

Sl. No.	Title of the Film/ Film-Strip	Language	Duration	Day and Date	Source	Remarks
1.	Harvest of Learning	English	-	Tuesday the 2nd May, 1967.	U.S.I.S.	Resource person I/c Mr. Hedges
2.	School Secondary Education	Hindi	-			
3.	Hybrid corn	English	18 to 22 Mts.	Monday the 8th May, 1967 & Tuesday the 9th May, 1967	Directorate of Extension	Shri R. P. Singh
4.	Growing of maize	English				
5.	How to grow more paddy	English				
6.	Cotton	English				
7.	Groundnut	English				
8.	Poultry keeping for profit	Hindi	9 mts.	Wednesday the 10th May, 1967	1. Director of Extension	Shri S.S. Srivastava
9.	Poultry production (f.strip)	English	-		2. The O.S. U.	
10.	Poultry charts (f.strip)	English	-		3. Deptt. of Agr.	
11.	Selecting laying hens	English	-			

NOTE: Each of the above films should be previewed by officers incharge much in advance.

DIRECTOR
SUMMER INSTITUTE IN AGRICULTURE

SUMMER INSTITUTE IN AGRICULTURE
Regional College of Education, Ajmer.

Film/Film-Strips Screening Programme For The Fortnight
From 15th May 1967 To 30th May, 1967

Sl. No.	Title of the Film	Day and Date	Hours of Screening	Resource person I/c
1.	An adequate teaching environment.	Tuesday the 16th May 67	8:15 P.M.- 9:15 P.M.	Sh. M.G. Kelkar.
2.	Preparing to teach)		
3.	Effective use of visuals in Agri.	) - do -	8:30 A.M.- 10:00 A.M.	- do -
4.	Improving the use of chalk-board.)		
5.	Effective use of audio visual materials))		
6.	Village carpentry (Film)	) Monday the 22nd May, 1967	8:15 P.M.- 9:15 P.M.	- do -
7.	How safe is your farm shop (Film-strip))		
8.	The mould-board plough Black-Smithy in small towns.	) - do -	- do -	- do -
9.	Labour efficiency (Film-strip)	) Friday the 26th May, 1967	8:30 A.M.- 10:15 A.M.	Sh. V.K. Gupta
10.	Soil Erosion	) - do -	8:15 P.M.-	Sh. Kelkar
11.	Soil and water, conservation/Rain drip and Erosion.	)	9:15 P.M.	
12.	Fundamentals of Irrigation.)		
13.	Hybrid Napier Grass Slides.	) Monday the 29th May, 1967	8:30 A.M.- 10:00 A.M.	Sh. R.P. Singh
14.	Wheat	) - do -	8:15 P.M.-	- do -
15.	How to grow more sugarcane!	)	9:15 P.M.	
16.	Vegetable growing	) Tuesday the 30th May, 1967	- do -	- do -
17.	Growing potatoes (Film-strip).)		